AUG 29 1944

BRITISH MEDICAL JOURNAL

JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

SATURDAY JULY 15 1944

TABLE OF CONTENTS

Current Progress in Sterilization of Air STUART MUDD, M.D. 67

Intravenous Barbiturates in Treatment of Hysteria CARL LAMBERT, M.D., and W. LINFORD REES, M.D. 70

Gunshot Wound from Unusually Large Missiles RICHARD CHARLES, F.R.C.S.I. 73

Invagination Method of Intestinal Anastomosis J. B. HOGARTH, F.R.C.S. 75

Locating a Mobile Renal Calculus at Operation B. W. GOLDSTONE, F.R.C.S.Ed. 77

Self-medication and Patent Medicines J. N. P. DAVIES, M.B. 87

MEDICAL MEMORANDA

Fulminating Diphtheria in a War Nursery. GORDON STRONG, M.B. 78
Adenocarcinoma of Small Intestine in Father and Daughter. D. B. E. FOSTER, F.R.C.S.Ed. 78
Congenital Deformity of Ribs. J. D. H. BIRD, F.R.C.S. 79
Rupture of Atheromatous Abdominal Aorta. CYRIL BORODA, M.B. 79

GENERAL ARTICLES AND NEWS

Nova et Vetera:
Harvey Cushing's Library.....90
Pepys and Alcoholism.....91
Safety in Operating Theatres and Anaesthetic Rooms.....89
A Mains-operated Single-cell Photo-electric Colorimeter. C. J. O. R. MORRIS, Ph.D. 81
KHARTUM SCHOOL OF MEDICINE.....89
MEDICAL SICKNESS AND LIFE ASSURANCE.....89
MEDICAL PROTECTION.....90
THE SERVICES.....97
UNIVERSITIES AND COLLEGES.....97
MEDICAL NOTES IN PARLIAMENT.....98
MEDICAL NEWS.....99

REVIEWS

Infectious Fevers.....80
Dermatology and Syphilology.....80
Savill's Medicine.....80
Notes on Books.....80

Epidemiology Section.....100

LEADING ARTICLES

Air Disinfection.....82
Hiatus Hernia and Anaemia.....83

ANNOTATIONS

Nutrition and the War.....84
Toxic Polyneuritis after Sedormid.....84
Venereal Disease in Sweden.....85
Penicillin in Virus Diseases.....85
Differentiation of *Culex molestus*.....86
Control of Traffic in Narcotics.....86

OBITUARY

J. Shaw Dunn, M.D. 97
William Habgood, M.D., D.P.H. 97
Hilta I. C. Morley, M.B., D.P.H. 97
Joseph Walker, M.R.C.S. 97
Jean Gwenneth Brabner, M.R.C.S. 97
Walter Denby, M.D. 97

LETTERS AND ANSWERS

Diagnosis of Acute Abdominal Disease—Treatment of Infantile Uterus—Enlarged Tonsils—Deafness in a Young Man—Treatment of Lumbago—Treatment of Molluscum Contagiosum—Possible Thyroid and Ovarian Deficiency—Prophylaxis in Allergic Child—Income Tax—D.P.M.: Minimum Requirement—Grenz Rays—Hospitality for Doctors' Children 101-2

SUPPLEMENT

Medical Services in Poland 13
CORRESPONDENCE.....14
BRANCH AND DIVISION MEETINGS.....16
H.M. FORCES APPOINTMENTS.....16

CORRESPONDENCE

Operations on Infants as Out-patients. G. GREY TURNER, F.R.C.S. 92
The Term "Blast." FRANK STABLER, F.R.C.S. 92
Thiouracil and the G.P. D. STANLEY-JONES, F.R.C.S. 92
Chemotherapy in Otitis Media. T. B. JOBSON, M.D. 92
Recurrent Laryngeal Paralysis complicating Infective Hepatitis. J. MACKAY-DICK, M.B. 93
Sodium Pentothal in Nasal Operations. W. S. THACKER NEVILLE; F.R.C.S.Ed. ..93
Ether and the Oxford Vaporizer. JOHN ELAM, M.R.C.S. 93
Pentothal Anaesthesia. OSWALD MURPHY, M.B. 93
Metatarsalgia. A. STANDEVEN, F.R.C.S.Ed. 94
Cold Agglutinins. K. FROOMB, M.R.C.S. ..94
Estimation of Dental Caries. DOROTHY SMITH, M.B. 94
Ophthalmologist and Optician. GEOFFREY EBBAGE, M.R.C.S. 94
A National Pathological Service. E. B. HEANEY, M.B., H. M. S. TURNER, M.D., and D. HALER, M.B. 95
Medical Training. P. M. SHEPHERD, M.B. 95
Character in the Medical Student. R. J. GOURLAY, M.B. 96
Spanish Medicine. T. W. T. DILLON, M.D. 96

REPORTS OF SOCIETIES

ROYAL ACADEMY OF MEDICINE IN IRELAND: Thiouracil for Hyperthyroidism.....91

BRITISH MEDICAL ASSOCIATION, TAVISTOCK SQUARE, LONDON, W.C.

No. 4358, WEEKLY, PRICE 1/6

Copyright
REGISTERED AS A NEWSPAPER

THE THERAPY OF ASTHMA

The treatment of asthma resolves itself into a consideration of underlying factors and causes. Often in ASTHMA *the underlying cause* is not discoverable or changes from time to time—now irritant dusts, now bacterial infection, etc. *The underlying factor* is fortunately always the same—bronchospasm.

Thus sometimes causative agents can be removed or mitigated but always the underlying factor—bronchospasm—can be treated, successfully, with FELSOL.

Most cases of Asthma are chronic and demand patience in treatment—persistence with FELSOL will yield the highest possible percentage of successes.

NO MORPHIA—NO NARCOTICS

Physicians' samples and literature willingly sent on request.

Phenazone 0.47 *Iodopyrine* 0.03
Antipyrine Aceto-salicylas 0.40
Caffeine 0.10 *Ext. Viscum Album* 0.01 *Ext. Brachycladi* 0.01

Felsol REGD. POWDERS for ASTHMA

BRITISH FELSOL COMPANY LTD., 206/212 St. John St., London, E.C.1. *Telephone: Clerkenwell 5826. Telegrams: Felsol, Smith, London*

ANDREWS enhances the laxative action of an EFFERVESCING SALINE by the inclusion of MAGNESIUM SULPHATE

Andrews Liver Salt is the popular pleasant-tasting effervescing aperient. Its reliable laxative action is due to its being an effervescent saline supplemented by magnesium sulphate the osmotic action of which ensures the retention of sufficient fluid in the bowel for easy and painless evacuation. The magnesium sulphate in Andrews has a further advantage. It increases the flow of bile from the gall-bladder and so assists the later stages of digestion.

Andrews has a sedative action on the stomach and an alkalising effect in the bloodstream. It counteracts errors of diet, and is useful in indigestion, sickness and sick headaches.

Andrews may be confidently prescribed in pregnancy and lactation, whereas stronger purgatives might be harmful. It produces no violent disturbances in the system and does not affect the secretion of milk when used in doses recommended.

Large repeated doses of Andrews may also be given as a hydragogue purgative in treating oedema, ascites, pleuritic effusions and nephritis.

Whenever a laxative is called for, Andrews may safely be prescribed, even for delicate adults and children.

DOSE: As a laxative, the usual dose is 2 teaspoonfuls in a glass of water, but this should be adjusted to individual needs and, for children, graduated according to age.

Approx. active constituents:

Acid. Tart.	32% to 36%
Acid. Cit.	3% to 6%
Sod. Bicarb.	40% to 44%
Mag. Sulph.	17% to 21%
Other constituents	up to 1%

SCOTT & TURNER LTD · ANDREWS HOUSE · NEWCASTLE-UPON-TYNE 2 M 2

From now on, sister, SLEEP will do more good than we can

There is a time reached in the treatment of all ills when doctor and nurse can let the natural recuperative forces of the body do their work unaided. It is then that sound, refreshing sleep becomes the most important thing of all. The Vitamin B, phosphorus and calcium in Bournvita are valuable for the nerves. Bournvita contains malt, milk, eggs and chocolate, is particularly light and easily digestible—which is important in many cases of convalescence—and induces perfect *natural* sleep.

CADBURY'S
BOURN-VITA
FOR DEEP, RESTORING SLEEP

BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 15 1944

CURRENT PROGRESS IN STERILIZATION OF AIR

BY

STUART MUDD, M.D.

Professor of Bacteriology, School of Medicine, University of Pennsylvania

"The prevention and control of acute disease of the respiratory tract is the most serious problem and at the same time the most urgent challenge that to-day confronts medicine in general and industrial medicine in particular. Although diseases and injuries of occupational origin have long claimed the chief interest and attention of physicians in industry, it is now well established and generally recognized that in their frequency and importance non-occupational diseases far outweigh those conditions which arise from industry. The latter are chiefly responsible for stupendous losses in both time and money to employer and employee alike."

The sentences quoted opened an address by George Morris Piersol at the Third Annual Congress on Industrial Health in Jan., 1941. Does examination of available data on industrial disability due to acute respiratory disease indicate that this challenge is being met in current practice? Quite the contrary. The frequency of sickness and non-industrial injuries causing disability for 8 consecutive calendar days or longer among a very large sample of industrial workers over the years 1933–42 has been analysed by the United States Public Health Service (Gafafer, 1943a). Sickness absenteeism among males due to respiratory disease has shown a steadily mounting rate since 1938; the rate for 1942 was higher than in any previous year of the 10-year period. For females the rate has been steady since 1939, but at a high level. Moreover, respiratory sickness in male industrial workers in the first quarter of 1943 (Gafafer, 1943b) was far higher than in the corresponding quarter of 1942; indeed, the respiratory rate for the first quarter of 1943 has never been equalled or exceeded during the 10-year period, the first-quarter rate of 1943 exceeding the 10-year mean rate by 52%.

Whatever are the causes of this high and mounting rate of industrial disability due to respiratory disease, common sense cautions us not to seek the complete explanation in the conditions of work in industrial establishments alone. The packing of industrial and other workers in the ill-ventilated common carriers—trains, street cars, and buses—since rubber and petrol shortages have been overtaxing already taxed transportation facilities, certainly provides one superlative opportunity for the spread of endemic and epidemic respiratory disease; crowded and confined places of amusement provide another.

In attempting to form even a rough estimate of the cost of this industrial disability, recourse may be had to smaller samples which have been subjected to more detailed analysis. Figures for a public utility for the period 1938–41, inclusive, have been published (Gafafer, 1943c); these show that days lost from respiratory disease are more than a third of the total days lost from all causes of disability. Dr. Gafafer has kindly permitted use of a similar table for 1942. This gives the average number of absences lasting one calendar day or longer in a sample comprising approximately 2,500 male and 550 female employees in a public utility in 1942. The average number of days lost per person during 1942 owing to respiratory disease was for males 3.1, for females 4.3. It is of course understood that the figures for one company cannot be taken as representative of conditions in American industries as a whole. These rates may be either too high or too low. To gain an idea of the approximate cost, if these rates were accurately representative, however, we may multiply them by the numbers of non-agricultural workers in the United States; these are approximately 26 million male and 14 million female workers (Gafafer, personal communication). This yields an approximate total (with the reservations mentioned) of over 80 million man-days and over 60 million woman-days (or over 140 million person-days) lost to industry in the United States through respiratory disease in 1942. On the basis of 300 working days per year, this waste is approximately equivalent to the time of 470,000 persons working for a year.

The Bureau of Labor Statistics publishes monthly data on straight-time hourly earning for manufacturing industries in the United States as a whole (B.L.S. Chart Series, May, 1943). I have computed an average daily earning by multiplying the straight-time hourly earnings (80.5 cents) by 8, the normal working day in American industry.* On this basis the loss in wages due to respiratory sickness amounts to roughly $900,000,000 per annum This does not include the expenses for medical care, overhead expenses arising out of idle machinery, and interruption in production schedules, etc.

Relation between Respiratory Disease and Infectiousness of Air

Persons sneezing, coughing, or even speaking loudly expel into the air large numbers of minute droplets which may contain in a viable and infective state any pathogenic bacteria or viruses present in their oral secretions. The larger of these potentially infectious droplets have a flight range of about a metre; they are conspicuous, are easily recoverable on bacteriological plates, and their ability to transmit respiratory infection is obvious. When droplets or sputum have dried on solid surfaces their residues may become the source of infective dust.

The role of droplets was notably stressed by the German hygienist Flügge† (1897a, 1897b), and the doctrines of "droplet-infection" and dust-infection, or transmission of respiratory infection by droplets and by infective dust, dominated thinking in regard to respiratory disease for 30 years.

The greater part of the potentially infective material expelled by persons into the air, however, is not contained in droplets visible without special means, but in smaller droplets which

* It is unfortunate that daily rates of pay are not available. Since the figure representing costs of time lost due to respiratory disease is at best only an approximate one, the straight hourly earnings (excluding overtime earnings) are multiplied by 8 to secure a daily wage. It is recognized that this is somewhat arbitrary.

† Actually, however, Flügge himself appreciated the importance of invisible droplets accompanying the coarser visible droplets; these, he recognized, may persist in air for hours and reach distant parts of enclosed spaces.

evaporate almost instantaneously. The basic experimental demonstration was made by Wells (1933) and by Wells and Wells (1942) that much of the enormous germ-load conveyed to the atmosphere by the evaporated residues ("droplet-nuclei") of these finer droplets remains viable for hours or even days in the air of enclosed spaces and is wafted about like smoke to convey pathogenic bacteria or viruses to those who share the confined air. The atomizing of mouth-and-nose secretions into the air has lately been revealed with dramatic vividness by high-speed photography (Jennison, 1942). The enormously important role of pathogens floating in confined air in the dissemination of respiratory disease has now been adequately documented by animal experiments, by observations in controlled human environments, and by epidemiological deductions; the evidence to 1941 has been conveniently assembled in *Aerobiology*, a volume published by the American Association for the Advancement of Science with the aid of the Committee on Aerobiology of the National Research Council.

Any attempt to appraise current progress in the sterilization of air must, however, take account of the historical background. Members of the medical profession who now occupy responsible positions in practice, in teaching, and in administration have been thoroughly trained in the doctrine of "droplet-infection." Recognition of the greater importance of true air-borne infection has come only within the past 10 years, and has deeply impressed only the relatively small number of those who have seriously examined evidence which is either very modern or very old. (Of course, important foundations of the germ theory of disease were laid by the studies of Pasteur, Tyndall, and others on micro-organisms in the air.) Lack of a more insistent demand on the part of the medical profession for practical solution of the problems of air-borne infection might seem incomprehensible if this background were lost sight of. Lacking adequate demand by many prominent members of the medical profession for progress in securing pure air-supplies, air-conditioning, from the standpoint of health at least, has somewhat neglected the main point. The point is that, just as intestinal disease has in considerable measure been controlled by reducing the germ-load of water and milk, for the control of air-borne respiratory disease practical measures for reducing the germ-load of confined air must be instituted.

Continuous Disinfection of Air

Effective continuous disinfection of the air of enclosed spaces has already been shown to be practicable where conditions are favourable and where the problem is approached with adequate determination and technical facilities and skill. The practical means are physical (ultra-violet radiation, dust-suppressive measures) and chemical (germicidal vapours). Doubtless physical and chemical means will each find appropriate place as mutually complementary measures in the fully matured art of providing non-infectious air in our future homes, transport vehicles, and places of work and recreation.

Ultra-violet Radiation

Application of ultra-violet radiation to disinfection of air has been systematically reviewed in the A.A.A.S. volume on aerobiology. The physiological and germicidal effects of ultra-violet radiation and the characteristics and standardization of commercially available ultra-violet sources are surveyed in detail. The successful application of ultra-violet radiation to reduction of wound infections in the operating-room is presented by Dr. Deryl Hart, the pioneer in this field, and by Drs. Kraissl and Wilson of Columbia. Cross-infections in hospital wards and in children's nurseries and schools are reviewed and analysed, and success in the reduction of these cross-infections by appropriate use of ultra-violet irradiation is recorded. More detailed analyses of successful control of childhood contagions in schools have been published by Wells, Wells, and Wilder (1942) and by Wells and Wells (1943).

More recent records of germicidal action against bacteria and viruses by ultra-violet radiation in a children's hospital, with reduction in cross-infection, have been published by Sommer and Stokes (1942), by Henle, Sommer, and Stokes (1942), and by Robertson, Doyle, and Tisdall (1943). The Council on Physical Therapy of the American Medical Association (1942, 1943) has found ultra-violet lamps acceptable as an adjuvant in the disinfection of air, and commercially available burners and fixtures of several types have been approved by the Council (C.P.T. Reports, 1942, 1943a, 1943b) for use in the operating-room, hospital nursery, and hospital ward.

The statement of the Council on Physical Therapy on acceptance of ultra-violet lamps for disinfecting purposes contains a carefully considered appraisal of the present status of the practical art. Pertinent statements are quoted below:

"At the present juncture the design and installation of ultra-violet lamps in their fixtures for disinfecting purposes is empirical, and the adequacy of disinfection by any given installation of lamps must be judged by clinical experience. For example, clinical evidence has been submitted to the Council showing that, in a scarlet fever ward (size about 60 by 27 by 11 ft.) containing 16 cubicles, four lamp units, each one emitting a radiant flux of 30 microwatts per sq. cm. at 1 metre, were found inadequate; but eight lamp units in the ward, each unit protecting two cubicles, and a ninth unit at the entrance, prevented cross-infection. This is a rather high intensity (requiring 20 minutes' calculated time to produce a minimum perceptible erythema) incident on a person of average height, standing directly under a lamp fixture suspended from a ceiling of average height. A greater number of lamps, each one of lower ultra-violet intensity (say, 20 microwatts per sq. cm. at 1 metre) and lower power input, more evenly distributed throughout the room, should be safer and equally efficient in disinfecting the air. This is a matter of engineering design, beyond the scope of the Council's purview. . . .

"Since the ultra-violet emission from the low-vapour-pressure mercury discharge tube is practically homogeneous radiation of wave-length 2,537 A°, such a lamp can be readily calibrated in absolute value and used as a standard. The intensity at 1 metre may be only one-fifth of the Council's unit, or 20 microwatts per sq. cm., for safety to the occupants. This will require a minimum exposure of 250 to 500 seconds for adequate disinfection, which will depend on the rate of circulation and average distance of the air in front of the lamp. Evidence has been submitted to the Council showing that cross-infection in a contagious ward may be prevented by using a sufficient number of lamp units, each unit having an intensity of 30 microwatts per sq. cm. at a distance of 1 metre from the burner. This will require an exposure of 167 to 334 seconds for adequate disinfection, which implies a slow movement of the air in front of the lamp installation. . . .

"The use of ultra-violet radiation for disinfecting air in industrial plants, barracks, school-rooms, assembly halls, refrigerators, and so on also appears to be outside the Council's purview. In fact, at this juncture the whole question of the use of ultra-violet radiation for disinfecting purposes is too complex and too little understood for the Council to do more than attempt to keep the medical profession informed regarding particular ultra-violet lamps that are acceptable for use in this method of disinfecting air in hospitals, nurseries, and operating-rooms (relatively free from dust) as practised by present-day empirical methods."

It must be emphasized that the Council's statement of acceptance does not prejudge the applicability and the usefulness of ultra-violet radiation to the problem of disinfecting the air of industrial plants, offices, assembly halls, railroad cars, etc. It emphasizes, however, that the specifications of engineering design and other features determining the adequacy and safety of the practical art must be further developed and applied before evaluation will become possible.

Another paragraph of the Council's statement discusses responsibility for design of installations.

"It is to be noted that a lamp used for disinfecting purposes is a single unit in an installation, and that compliance of the ultra-violet output of a single lamp unit with the Council's requirements does not ensure adequate radiant disinfection or the safety of the occupants of the room in which an installation of such lamps is in actual use. Obviously the manufacturer and the distributor of such lamps must assume some responsibility for the adequacy of the lamp installation for purposes of radiant disinfection of the air, and for the adequacy of the protection from injury of the occupants of the space irradiated. Concerning these questions the Council cannot undertake supervision or assume responsibility for the satisfactory performance of any particular installation."

The Senior Biophysicist of the Division of Industrial Hygiene, National Institute of Health (who also is Associate Referee for the A.P.H.A. on Disinfection of Air by Ultra-violet Irradiation), has critically reviewed applications, precautions, and limitations of the use of ultra-violet irradiation to disinfection of air (Hollaender, 1943). The statement of the Council on Physical Therapy is quoted with approval (Hollaender, 1943): "Obviously the manufacturer and the distributor of such

lamps must assume some responsibility for the adequacy of the lamp installation for purposes of radiant disinfection of the air, and for the adequacy of the protection from injury of the occupants of the space irradiated."

Acceptance by the engineering groups in whose province air hygiene may be considered as properly falling of a measure of responsibility for elaborating specifications for proper design and servicing of installations would be an important step towards development of a practical art of air hygiene.

The efficacy of ultra-violet irradiation in killing air-borne bacteria and viruses under conditions in which the air is relatively free from dust and lint has been confirmed in Great Britain by Andrewes *et al.* (1940) and by Edward, Lush, and Bourdillon (1943). The difficulty of disinfecting dust-laden air by this means has also been emphasized. Andrewes *et al.* suggest the combination of air filtration and ultra-violet irradiation in recirculation systems and for certain special purposes.

Germicidal Vapours

The spraying of germicides into the air was of course a part of the technique of antiseptic surgery. Modern interest in germicidal mists was stimulated by the demonstration by Douglas, Hill, and Smith (1928), Trillat (1938), and Masterman (1938) that certain bactericidal substances—e.g., NaOCl and a number of phenolic compounds—when dispersed in the air as fine mists or aerosols exerted a highly lethal effect on air-borne bacteria. Twort, Baker, Finn, and Powell (1940, 1942) found that hexyl-resorcinol dissolved in propylene glycol made a highly effective and satisfactory germicidal aerosol.

An inclusive and practical discussion of the problems of air-borne infection and means for its amelioration in wartime Britain has been presented by Andrewes *et al.* (1940). Concerning germicidal mists and vapours they conclude: "*Hexyl-resorcinol* in propylene glycol has proved perhaps the most effective under laboratory conditions, but unfortunately neither the antiseptic nor its solvent is at present readily enough available* in large amounts to warrant its introduction except for special purposes."

Considerations of economy and practicability as well as of efficacy have served to focus attention in Britain on the germicidal value of hypochlorites and hypochlorous acid. Actually the use of hypochlorites for purification of air was first tried in England as early as the influenza pandemic in 1918. Masterman (1941) reviews in detail the early history and various controversial aspects of the use of hypochlorites for air purification. He describes an atomizing device (dynalysor) as already in successful operation: "For many months the dynalysor has been successfully employed for hypochlorite spraying in hospitals, offices, and other inhabited rooms; and air purification by hypochlorites is not a scheme 'with definite possibilities' but a successful *fait accompli.*" Masterman concludes that HOCl gas is the active germicide in hypochlorite spraying.

Bourdillon, Lidwell, and Lovelock (1942) have reported success with hypochlorite atomized by a hand spray in disinfecting air contaminated by sneezing. They note certain unfavourable conditions, "such as low relative humidity or high content of organic matter in the air, which may hinder the action of hypochlorite sprays."

Edward and Lidwell (1943) report favourable tests on sterilization of air-borne influenza virus with hypochlorous acid gas. "A concentration of 1 vol. of gas in 2 million vols. of air is probably effective in destroying 99% or more of virus particles when the proportion of these in the air is small. Preliminary experiments on mice and cats are recorded which failed to reveal any toxic effects produced by inhaling the gas in relatively high concentrations or for prolonged periods. Acute irritation of mucous membranes only was found. This did not appear to lead to any increased susceptibility of mice to subsequent infection with influenza."

Exploration of the possibilities of continuous disinfection of air by chemical substances has made and is making rapid progress in America through the work of O. H. Robertson and his associates. They determined that certain of the glycols alone, notably propylene glycol (Robertson *et al.*, 1942) and triethylene glycol (Robertson *et al.*, 1943), provided promising means for continuous disinfection of air. They demonstrated that the germicidal action depended, not, as earlier supposed, upon collision of fluid droplets with air-borne bacteria, but upon condensation of hygroscopic glycol molecules upon air-borne droplets containing bacteria. The use of 1 g. of propylene glycol dispersed as vapour in 5 or 10 million c.cm. of air and 1 g. of triethylene glycol vapour in several hundred million c.cm. of air was found to kill pathogenic respiratory bacteria and the virus of influenza in air in seconds or minutes. Rat and monkey colonies kept constantly in atmospheres saturated with vapours of propylene glycol for periods up to 18 months and triethylene glycol up to a year suffered no ill effects detectable by observation or microscopical examination (Robertson, 1943b).

"The germicidal activity of glycol vapours is markedly influenced by certain environmental factors, the most important of which is atmospheric humidity (Robertson, 1943b). A dry atmosphere is unfavourable. Likewise desiccated bacterial particles are not as susceptible to the vapour action as are moist ones. It has been found that the glycols are most effective at relative humidities between 40 and 60%." Subsequent work by Bigg, Jennings, and Fried (1944a) and Bigg and Jennings (1944) places the relative humidity for maximal germicidal action of glycol vapours at from 30 to 50%. The former workers indicate also the types of apparatus that are being developed for disinfection of the air of large enclosed places by glycol vapours.

Careful investigation of the possibility of fire hazard resulting from the dispersal of glycol vapours into the atmosphere of enclosed spaces has also been made by Bigg, Jennings, and Fried (1944b). These authors conclude: "In the vapour-phase concentration required for air sterilization, propylene and triethylene glycol offer absolutely no fire or explosive hazard. The addition of water to these substances greatly reduces the possible fire hazard produced by their presence in storage or vaporizing devices."

Clinical application of glycol vapours during the winters of 1941–2 and 1942–3 is recorded by Harris and Stokes (1942, 1943), working at the Children's Seashore House in Atlantic City. This convalescent home has a relatively stable population, and the children in the wards are confined to their beds, and thus are subject to a minimum of contact or direct-droplet infection. Experimental and control wards were carefully matched; indeed, in the second study (Harris and Stokes, 1943) control and glycol-vapour wards were alternated for three-week periods throughout the respiratory season. Ill effects were not encountered. The germ-load of the air was shown to be greatly reduced by the glycol vapours as judged by direct plate counts. In the preliminary study, 2 respiratory infections occurred in the vapour-containing ward as compared with 16 in the analogous control ward. In the second and larger study, 5 respiratory infections occurred in the vapour-containing wards as compared with 100 in the similar control wards without glycol vapour.

In his report as Associate Referee on Disinfection of Air by Germicidal Vapours and Mists Prof. O. H. Robertson (1943a) writes: "Practical application of the use of glycol vapours for the purpose of controlling air-borne infection has had to await the construction of suitable apparatus for the dispersion of glycol vapours into large enclosed spaces and the development of an instrument to control automatically the concentration of glycol vapour in the air. Rapid progress is being made in the solution of both these problems."

Discussion of dust in industry would be outside the scope of this review. Consideration of the air as a vehicle of infection would be very incomplete, however, without reference to the importance of dust, both as a carrier of pathogenic bacteria and viruses and as a shield of air-borne pathogens against the means used for disinfection of air, such as ultra-violet radiation and germicidal vapours. British investigators (Van den Ende and Andrewes, 1942) in particular, working under wartime conditions, have found dust a very serious obstacle to application of measures for disinfection of air. They have introduced practical methods for reducing dust from floors, textiles, and bedclothes by treatment with light paraffin oils (Andrewes *et al.*, 1940; Van den Ende and Andrewes, 1942).

* Both hexyl-resorcinol and the glycols are available in the United States.

Experiments on the reduction of the infectivity of dust by floor irradiation with ultra-violet have been instituted by Hollaender, du Buy, Ingraham, and Wheeler (1944). As a result of these experiments they suggest that "floor irradiation be combined with ceiling irradiation in practical tests in barracks or hospital wards to determine the effect, if any, of ultra-violet irradiation in lowering morbidity rates or preventing cross-infection." They caution that "if such experiments be attempted it must be borne in mind that certain types of flooring may prove to be capable of reflecting sufficient amounts of ultra-violet to cause harmful effects."

I have just (April, 1944) been informed by Dr. Edward Bigg that practical apparatus (Bigg and Jennings, 1944) has been constructed and utilized for introduction into the air of properly humidified glycol vapours. Boiling glycol–water solutions are maintained automatically at any desired relative concentration. "The vapours emitted from such boiling solutions are of constant composition and are bactericidal. . . . A predetermined rate of delivery and concentration of water and glycol vapour may be accurately produced by varying the heat input and the temperature of the boiling mixture" (Bigg, personal communication).

Summary

Respiratory disease is responsible for more than a third of the total number of person-days lost to American industry by disability. The air of enclosed spaces is at present the principal vehicle for the dissemination of respiratory disease. The rationale of rendering air safe for human occupancy has been laid down in the laboratory and in suitable controlled human environments. The means are ultra-violet irradiation, dust-suppressive measures, and the use of germicidal vapours of hypochlorous acid and of propylene and triethylene glycol. Elaboration of the practical art of providing safe air-supplies is, however, not to be accomplished cheaply or through the efforts of a few people. A specialty or specialties in sanitary engineering will have to develop around air sanitation, as has occurred around water and milk sanitation. Physicians, air-conditioning specialists, heating, ventilating, and illuminating engineers, the manufacturers of necessary equipment, agencies regulating public health practice, and the industries which will benefit by reduction of industrial disability through respiratory disease ultimately will all have to contribute effort and money to solving the manifold aspects of the problem. How much is it worth to reduce an annual industrial waste equivalent to the output for a year of approximately 470,000 persons?

REFERENCES

Andrewes, C. H., *et al.* (1940). *Lancet*, **2**, 770.
Bigg, E., and Jennings, B. H. (1944). *The Introduction of Glycols for Air Sterilization by a New Vaporization Method.* (In press.)
—— —— and Fried, S. (1944a). *Amer. J. med. Sci.*, **207**, 361.
—— —— —— (1944b). Ibid., **207**, 370.
B.L.S. Chart Series (May, 1943). Bureau of Labor Statistics, United States Department of Labor, p. A 15.
Bourdillon, R. B., Lidwell, O. M., and Lovelock, J. E. (1942). *British Medical Journal*, **1**, 42.
Council on Physical Therapy (1942). *J. Amer. med. Ass.*, **118**, 298.
—— (1943). Ibid., **122**, 503.
—— Reports (1942). Ibid., **119**, 29.
—— —— (1943a). Ibid., **122**, 1015.
—— —— (1943b). Ibid., **123**, 92, 2768.
Douglas, S. R., Hill, L., and Smith, W. (1928). *J. industr. Hyg.*, **10**, 219.
Edward, D. G. ff., and Lidwell, O. M. (1943). *J. Hyg.*, Camb., **43**, 196.
—— Lush, Dora, and Bourdillon, R. B. (1943). Ibid., **43**, 11.
Flügge, C. (1897a). *Z. Hyg. InfektKr.*, **25**, 179.
—— (1897b). *Dtsch. med. Wschr.*, **23**, 665.
Gafafer, W. M. (1943a). *Publ. Hlth. Rep. Wash.*, **58**, 1250.
—— (1943b). Ibid., **58**, 1273.
—— (1943c). *Manual of Industrial Hygiene and Medical Service in War Industries* (ed. by W. M. Gafafer), p. 427, W. B. Saunders Co., Philadelphia.
Harris, T. N., and Stokes, J., jun. (1942). *Amer. J. med. Sci.*, **204**, 430.
—— —— (1943). Ibid., **206**, 631.
Henle, W., Sommer, H. E., and Stokes, J., jun. (1942). *J. Pediat.*, **21**, 577.
Hollaender, A. (1943). *Amer. J. publ. Hlth.*, **33**, 980.
—— du Buy, H. G., Ingraham, H. S., and Wheeler, S. M. (1944). *Science*, **99**, 130.
Jennison, M. W. (1942). *Aerobiology*, p. 106, Washington.
Masterman, A. T. (1938). *J. industr. Hyg.*, **20**, 278.
—— (1941). *J. Hyg.*, Camb., **41**, 44.
Piersol, G. M. (1941). *J. Amer. med. Ass.*, **116**, 1339.
Robertson, E. C., Doyle, M. E., and Tisdall, F. F. (1943). Ibid., **121**, 908.
Robertson, O. H. (1943a). *Amer. J. publ. Hlth.*
—— (1943b). Sterilization of Air with Glycol Vapours. Lecture before Harvey Society, April 15. To be published in 1942–3 *Harvey Lectures.*
—— Bigg, E., Puck, T. T., and Miller, B. F. (1942). *J. exp. Med.*, **75**, 593.
—— Puck, T. T., Lemon, H. F., and Loosli, C. G. (1943). *Science*, **97**, 142.
Sommer, H. E., and Stokes, J., jun. (1942). *J. Pediat.*, **21**, 569.
Trillat, M. A. (1938). *Bull. Acad. Méd.*, Paris, ser. 3, 119.
Twort, C. C., and Baker, A. H. (1942). *J. Hyg.*, Camb., **42**, 266.
—— —— Finn, S. R., and Powell, E. O. (1940). Ibid., **40**, 253.
Van den Ende, M., and Andrewes, C. H. (1942). *Aerobiology*, p. 281, Washington.
Wells, W. F. (1933). *Amer. J. publ. Hlth.*, **23**, 58.
—— (1943). Ibid., **33**, 1436.
—— and Wells, M. W. (1942). *Aerobiology*, No. 17, p. 99, Washington.
—— —— (1943). *Amer. J. med. Sci.*, **206**, 11.
—— —— and Wilder, T. S. (1942). *Amer. J. Hyg.*, **35**, 97.

INTRAVENOUS BARBITURATES IN THE TREATMENT OF HYSTERIA

BY

CARL LAMBERT, M.D.

Clinical Assistant, Psychiatric Department, Guy's Hospital; E.M.S. Neuropsychiatrist

AND

W. LINFORD REES, M.D., B.Sc., M.R.C.P., D.P.M.

E.M.S. Neuropsychiatrist

The value of intravenous barbiturates in psychiatric treatment remains controversial, despite increased popularity since the outbreak of war. Bleckwenn (1930) is credited with being the first to use intravenous barbiturates in psychiatry; he employed sodium amytal to produce lucid intervals in katatonic schizophrenics, to relieve insomnia, and, in criminological work, to elicit facts from difficult witnesses. Lindemann and Malamud (1934) gave the classical description of the subjective phenomena of light sodium amytal narcosis. They described its characteristic effect as the induction of a feeling of well-being, security, friendliness, and a desire to discuss personal matters not usually spoken of to strangers. Hexobarbitone (evipan) was introduced by Weese and Scharpff in 1932, and two years later was recommended by Hauptmann (1934) as an aid in the production of deep hypnosis. Horsley (1936) described the technique of narco-analysis, using 2½% solution of nembutal and pentothal. He found that psycho-analysis was made considerably more rapid by this method. The value of hexobarbitone in the treatment of neurosis has been stressed by Campbell (1938) and Stungo (1938, 1941). Hadfield (1942) pointed out the value of pentothal in artificially overcoming "blocks" in analysis. Sargant and Slater (1940) found amytal useful in recovering hysterical loss of memory in acute war neurosis. Mallinson (1940) described the technique used in the Navy, and Wilde (1942) reported the use of narco-analysis with pentothal in the treatment of 50 Service neurotics.

Most of the papers on the subject deal with heterogeneous neurotic groups, and tend to stress the advantages of this method of treatment. This paper is limited to one type of neurosis—viz., hysteria—and the results of treatment are compared statistically with those of other psychotherapeutic methods.

The Material

The total material considered consists of 247 successive cases of hysteria admitted to a unit of an E.M.S. neurosis centre. 126 patients received intravenous barbiturate in the course of their treatment. In 19 cases verbal hypnosis was used; the remaining patients were treated by ordinary psychiatric methods without the aid of either intravenous barbiturate or hypnosis. All patients participated in a comprehensive general scheme of treatment, which included various forms of occupational therapy, such as courses of instruction in book-keeping, typewriting, engineering, carpentry, gardening, etc. Remedial physical training formed an integral part of the scheme. Educational lectures and discussion groups also formed part of the patients' activities. Psychiatric social workers were employed when need for them was indicated.

Indications

The main indications for including intravenous barbiturate narcosis in the scheme of treatment were:

1. Cases in which it was considered that ordinary methods of treatment were unlikely to produce speedy recovery.

2. To elicit further information when the causative factors of the case were not clear.

3. To aid production of relaxation in patients with hysterical spastic motor symptoms or contractures.

4. To aid production of deep hypnosis in difficult cases.

5. Cases in which hysterical symptoms had not shown satisfactory improvement, in a reasonable time, at this or other hospitals, by such methods as ordinary persuasion, explanation, and re-education.

The indication varies with the type of symptom. Thus, cases of hysterical amnesia in which interrogation did not produce a speedy recovery of memory were usually given intravenous barbiturate without delay, as it was found to be by far the easiest and quickest method of recovering memory in such cases.

Choice of Barbiturate

The following barbiturates were tested: Sodium amytal (sodium iso-amyl-ethyl-barbiturate), 10% solution; pentothal (sodium ethyl-(1-methyl-butyl)-thio-barbiturate), 2½% solution; and soluble hexobarbitone (evipan—syn. cyclonal—sodium *n*-methyl-CC-cyclo-hexenyl-methyl-barbiturate), 10% solution. It is essential that these drugs be injected very slowly to ensure an even distribution throughout the body so that the required degree of narcosis may be adequately controlled and maintained. When used by the technique to be described we found that, apart from the duration of action, there was no essential difference between these drugs. Sodium amytal is less rapidly broken down in the body than pentothal or hexobarbitone, and therefore exerts its narcotic action for a relatively longer period.

Technique

After a number of cases had been treated it became increasingly apparent that the preparation of the patient and the general technique played an important part in producing therapeutic success. We tried various degrees of narcosis in pre-anaesthetic and post-anaesthetic phases, and found that the pre-anaesthetic phase of light narcosis was the most suitable for psychotherapy.

The technique can be divided into five phases: (1) preparation of patient; (2) induction of narcosis; (3) phase of analysis; (4) removal of symptoms by suggestion and persuasion; (5) continuance of use of recovered functions to full waking state.

Preparation of Patient.—Soon after the patient's admission to the ward full psychiatric and physical examinations are carried out. Rapport is increased by further interviews if necessary. When it is decided to use intravenous barbiturate he is told that he will receive an injection which will aid his recovery. An explanation of his symptoms is given and the nature and mode of action of the injection are explained in terms suitable to his intelligence and personality. He is told beforehand when he will be receiving the treatment, and an attitude of expectation of cure is encouraged. This is reinforced by contact with patients successfully treated by this method.

Induction of Narcosis.—At the appointed time the patient is made to rest comfortably in bed in the treatment-room. The preparations for the injection are ready and the materials at hand. He is engaged in conversation and the venepuncture is made with as little inconvenience to him as possible. Conversation is continued, and the solution is injected very slowly and evenly—not more than 1 c.cm. per minute. As narcosis proceeds the patient becomes progressively more communicative and usually develops increasing suggestibility and mild euphoria. If his speech becomes slurred and indistinct the injection should be stopped, as it indicates that the narcosis is becoming too deep and the patient may go off to sleep, with resulting loss of rapport. This phase may be determined by letting the patient count backwards from 50 and stopping the injection when he repeats a number or counts in normal progression. After some experience this counting technique may be dispensed with, as better rapport can be obtained by just continuing the conversation and ceasing to inject when yawning or slight slurring of speech indicates drowsiness. The desired stage of narcosis can be maintained by the injection of further small amounts of solution if necessary (0.2 to 0.3 c.cm. is usually enough). The quantity of solution required to produce this degree of narcosis varies from 1 to 4 c.cm., depending on the patient's reaction. It is not possible to determine beforehand how much will be required in a particular case.

Phase of Analysis.—As the drug takes effect the patient usually talks with increasing freedom, and the physician limits himself to occasional prompting or follows up clues already gained from the history. The patient must not be hurried, and the session must be continued until it is no longer profitable to proceed. Abreaction of repressed emotion, when it occurs, should be as complete as possible.

Removal of Symptoms.—When the analytic phase is terminated the symptoms can be dealt with by any method of approach favoured by the physician. The patient's suggestibility is increased and the symptom usually readily removed by firm suggestion and persuasion.

Use of Recovered Functions.—When functional integration is achieved the patient is made to continue using the recovered functions into the full waking state. He is allowed to mix with the other patients and demonstrate his recovery. The continuation of the active use of the recovered functions into the full waking state is important in order to consolidate the recovery. The patient should also be seen the following day for further firm persuasion and encouragement.

TABLE I.—*Showing Results of Treatment of Hysteria in 126 Service Patients by Means of Intravenous Barbiturate*

Group	No.	Removal of Symptoms (%)	Considerable Improvement (%)	Slight or no Improvement (%)
Conversion group:				
(1) Motor	33	63·63	30·30	6·06
(1a) Stammer (recent)	7	57·14	28·57	14·28
(2) Sensory (general)	16	25·00	37·50	37·50
(3) Special senses	3	100·00	—	—
Dysmnesic group:				
(1) "Fits"	5	100·00	—	—
(2) Somnambulism	6	33·33	33·33	33·33
(3) Amnesia	56	82·14	7·14	10·71
Totals	126	67·46	19·04	13·49
Totals excluding amnesia cases	70	55·71	28·57	15·71

TABLE II.—*Results of Treatment of Hysteria in 237 Service Patients*

Group	No.	Removal of Symptoms (%)	Considerable Improvement (%)	Slight or no Improvement (%)
(a) Patients treated with Intravenous Barbiturate				
Conversion group:				
(1) Motor	29	65·51	34·49	—
(1a) Stammer (recent)	7	57·14	28·57	14·28
(2) Sensory (general)	10	20·00	40·00	40·00
(3) Special senses	3	100·00	—	—
Dysmnesic group:				
(1) "Fits"	5	100·00	—	—
(2) Somnambulism	6	33·33	33·33	33·33
(3) Amnesia	56	82·14	7·14	10·71
Totals	116	69·80	18·90	11·20
Totals excluding amnesia cases	60	58·30	30·00	11·70
(b) Patients who received General Psychiatric Treatment without the Aid of Intravenous Barbiturate				
Conversion group:				
(1) Motor	33	78·78	18·18	3·03
(1a) Stammer (recent)	3	33·33	66·66	—
(2) Sensory (general)	33	12·12	48·48	39·39
(3) Special senses	5	60·00	20·00	20·00
Dysmnesic group:				
(1) "Fits"	11	81·81	—	18·18
(2) Somnambulism	1	—	—	100·00
(3) Amnesia	16	87·50	6·25	6·25
Totals	102	55·88	25·49	18·62
Totals excluding amnesia cases	86	50·00	29·06	20·93
(c) Cases treated by Hypnosis				
Conversion group:				
(1) Motor	5	60·00	20·00	20·00
(1a) Stammer (recent)	3	100·00	—	—
(2) Sensory (general)	4	75·00	—	25·00
(3) Special senses	1	100·00	—	—
Dysmnesic group:				
(1) "Fits"	1	100·00	—	—
(2) Somnambulism	1	—	—	100·00
(3) Amnesia	4	75·00	—	35·00
Totals	19	73·68	5·26	21·05
Totals excluding amnesia cases	15	73·33	5·26	30·00

Results of Treatment

Tables I and II show the results obtained in the treatment of 247 successive admissions of Forces patients to a unit of an E.M.S. neurosis centre. Table I shows the results in a group of 126 patients treated with intravenous barbiturate. Ten of these patients had previously been treated by persuasion and re-education without success, and so for purposes of comparison with other psychotherapeutic methods are excluded from Table II. Table II therefore gives the results of treatment of 116 patients treated with intravenous barbiturate; 102 patients treated by ordinary psychiatric methods such as explanation, persuasion, and ordinary suggestion; and 19 cases treated by hypnosis.

We have taken symptomatic recovery and functional integration as the criteria for evaluating the results. The criterion of return to duty as an indication of therapeutic success was found to be unsatisfactory for many reasons—e.g., the appropriate disposal depends on the total assessment of the case, and symptomatic recovery is only one of the many factors to be considered. While some patients have to be discharged from the Service in spite of symptomatic recovery, others could be retained for suitable work in spite of their symptoms. It will be seen from Table II that intravenous barbiturate was included in the treatment of about half the total admissions for the period under consideration. Of cases of hysterical amnesia 73% were treated with intravenous barbiturate, and as the results were relatively satisfactory the weighting of the intravenous barbiturate group with cases of amnesia will tend to give an unduly high proportion of therapeutically successful results. It is therefore desirable to compare the groups without the amnesia cases in addition to the groups as a whole.

Comparison of Treatment Results of Total Groups

From Table II it will be seen that 88.7% of the barbiturate narcosis group showed complete symptomatic recovery or considerable improvement; the corresponding figures for the general psychiatric treatment and hypnosis groups are 81.4 and 78.9% respectively, recording an apparently higher therapeutic success rate for the barbiturate narcosis group. The differences, however, are in the realm of chance. The value of "t" for the difference between the barbiturate and general psychiatric treatment groups is 1.52 (P is between 0.2 and 0.1, and is considerably above the 0.05 level of significance). Similarly the difference in results between the barbiturate narcosis and hypnosis groups is not statistically significant (t=0.99, P is between 0.4 and 0.3). Comparing only the proportion of those showing full functional recovery, the difference between the barbiturate and general psychiatric treatment groups is greater, but is not statistically significant (t=1.77). Similarly the difference between the results of the barbiturate and hypnosis groups is not statistically significant (t=0.36).

Comparison of Groups, excluding Cases of Amnesia

When the amnesia cases are excluded the difference in results becomes even less marked. Comparing the proportion of cases showing complete recovery, the difference between the barbiturate and general psychiatric treatment group is not statistically significant (t=0.93). The difference from the hypnosis group is also in the realm of chance (t=1.1). Comparing the proportion of cases showing complete symptomatic recovery or considerable symptomatic improvement, we find that the differences in results between the barbiturate and general psychiatric treatment and hypnosis groups are again not statistically significant (t=1.5 and 0.86 respectively).

The results of treatment of the conversion and dysmnesic groups were compared to ascertain whether the different forms of treatment produced significantly different results.

Conversion Type.—The percentage of cases showing complete recovery and considerable improvement in the three groups are: barbiturate narcosis group, 86.4%; general psychiatric treatment group, 79.7%; hypnosis group, 93%. When these results are statistically evaluated they show no significant differences (t=0.95 for difference in barbiturate and general psychiatric treatment groups, and t=0.77 for difference between the barbiturate and narcosis groups). Thus there are no statistically significant differences between the results of treating conversion symptoms by the three methods.

Dysmnesic Group.—Taking the dysmnesic symptoms, the proportion of cases showing complete recovery or considerable improvement is 86.2% for the barbiturate group and 85% for the general psychiatric treatment group. The difference is not statistically significant (t=0.14).

Motor Symptoms

Intravenous barbiturates were used in the treatment of about half the total number of patients with hysterical motor symptoms. The rapidly acting barbiturates were found preferable for treating motor symptoms, as the patient could be made to continue using the recovered function into the full waking state in a reasonable time. Motor symptoms were usually removed by passive movements, followed by active movements with the appropriate suggestions. Patients with hysterical gaits were made to run as soon as possible. Hysterical contractures were the only hysterical symptoms requiring deep narcosis to ensure adequate relaxation.

The percentage of cases showing complete recovery is lower than that of the group treated by ordinary psychiatric methods. The difference (13.27%) is, however, not statistically significant (t=1.18). The difference from the hypnosis group in the proportion of cases showing complete recovery is also in the realm of chance (t=0.1).

Stammering.—Recent stammers were fairly easily removed by relaxation and suggestion under ordinary hypnosis. Chronic stammers showed only temporary improvement and usually relapsed after a short interval.

Sensory Symptoms

The main symptoms in the special senses group were varying degrees of deafness and blindness, and usually responded well to suggestion under barbiturate narcosis. In the general sensation group anaesthesias were easily removed by any method. Various somatic pains were found to be by far the most difficult symptoms to treat by any method. The proportion of cases showing complete recovery when treated by hypnosis is significantly greater than that of the intravenous barbiturate narcosis treatment (t=2.3). The difference in proportion of cases showing complete symptomatic recovery in the barbiturate narcosis and general psychiatric treatment groups is not statistically significant (t=1.01).

In the dysmnesic group we found that intravenous barbiturate narcosis had no advantage over other therapeutic methods in the treatment of somnambulism or hysterical fits.

Amnesia

Intravenous barbiturate narcosis was found to be by far the quickest and easiest method of recovering memory in hysterical amnesia. It was used in all cases in which memory did not recover spontaneously or after a short period of interrogation. Such cases constituted 73% of the total number. The lost memory was recovered completely in 82% of cases; this result is not as high as that obtained for the general psychiatric treatment group (87.5%). The difference, however, is not statistically significant (t=0.91). In the intravenous barbiturate group 89.28% showed considerable improvement or complete removal; the corresponding figure for the general psychiatric treatment group is 93.75%. Here again the successes are proportionately higher in the general psychiatric treatment group, though the difference is not statistically significant (t=0.59).

In most cases the patient begins talking spontaneously about the amnesic period. If he does not, he is asked to relate the events leading up to that period, and is prompted by any clues previously learned from the history. In a large number of cases facts relative to the main causative factor came out first under narcosis. Though hypermnesia was the rule in the typically hysterical cases, those patients with depressive or anxious preoccupation usually were only able to recall outlines of the period. Most patients recovered memory in one session. Some cases, however, required repeated injections, and often the memory would come back only after the patient had been in hospital some weeks. Most of these cases were found to be those developing amnesia in a depressive setting, and a number had made suicidal preparations or attempts during the amnesic period.

Intravenous barbiturate injections are popularly known as "truth serum" or "truth drugs." Our experience with cases treated by this method tends to show that although, as with alcoholic intoxication, one is more likely to get the truth from persons under barbiturate narcosis, this is by no means invariably so. It is probable that the degree of a person's honesty is not altered. In some cases we found that important information could be deliberately withheld. Two patients gave such fantastic and inherently improbable accounts of their amnesic periods that the stories were considered to be almost certainly untrue. Social inquiry revealed that one of these patients was extremely fond of romancing, and that he was in fact a case of pseudologia phantastica. We have knowledge of a patient who gave detailed accounts of his experiences

action in France. Later it was proved conclusively that not only had he not been in action but he had not even left the country.

The cases in which memory failed to be restored fell into three groups.

1. *Malingerers.*—We found that these cases behaved differently from others. Whereas most patients became communicative under barbiturate narcosis, the malingerer usually became more quiet and guarded. When he was questioned about the amnesic period he would often tend to yawn and go to sleep. Failure to recover memory may suggest malingering in some cases; but of course it cannot be used as proof, as the failure may be due to other causes, such as:

2. *Fugues,* occurring in depressive setting;

3. *Faulty technique,* such as allowing narcosis to become too deep: this probably explains why some physicians succeed after others have failed.

Discussion

Analysis of the results of treating 247 Service cases of hysteria shows that intravenous barbiturate narcosis is no better than ordinary persuasion and re-education. The usefulness of including intravenous barbiturate narcosis in a scheme of treatment varies with the type of hysterical symptom—e.g., it proved to be by far the easiest and quickest method of recovering memory in hysterical amnesia. On the other hand, it was of little value in treating somatic pains. The main advantage appears to be the saving of time; equally good or even better results can be obtained by other methods if one is prepared to devote a longer time to treatment. Thus intravenous barbiturate narcosis is particularly popular in wartime, when usually the time available for the treatment of each patient is strictly limited. The greater rapidity of psychotherapy when intravenous barbiturate is used is probably due to its pharmacological effects of diminishing inhibitions and also, probably, of increasing suggestibility in most cases. The increased suggestibility cannot wholly be attributed to the pharmacological effects of the barbiturate; in fact, Lewis (1941) considers the pharmacological effect to be trifling compared with the suggestive value of the procedure in the achievement of therapeutic success. Our findings confirm this view, and we regard the "psychological preparation" of the patient as of equal importance to the injection, and in some cases as of even greater importance. A number of patients recovered from their symptoms spontaneously during the preparatory phase before the injection had been given. However, each step of the general technique is of value in the achievement of therapeutic success.

Another important aspect of this method of treatment not often realized, but pointed out by Lewis (1941), is the increased confidence of the physician. Compared with verbal hypnosis there is usually less embarrassment to both physician and patient, and as risk of failure is negligible the former's confidence is increased. This increased confidence probably plays a large part in the achievement of successful therapeutic results.

Some specific disadvantages of using intravenous barbiturates were that in some cases great motor restlessness was precipitated, and the patients could only with difficulty be restrained from hurting themselves; also in some cases the physical procedure may tend to confirm the patient's cherished belief that he is suffering from some physical illness. This disadvantage, however, is probably outweighed by the suggestive value of the physical procedure. The results achieved cannot wholly be attributed to the intravenous barbiturate treatment, as essentially it fitted into a general scheme of treatment at the hospital, all aspects of which contributed to the successful outcome. Also it should be realized that barbiturate narcosis is merely an aid to psychotherapy and probably plays only a small part in producing therapeutic success. The success achieved depends mainly on the ability of the physician, his confidence in the method, and the general plan of treatment.

Summary

The results of treatment of 247 Service cases of hysteria are described with particular reference to 126 patients to whom intravenous barbiturates were given.

Various barbiturates were tried, but there was no important difference in the effects produced or in the results obtained.

The pre-anaesthetic phase of light narcosis was found to be most suitable for psychotherapy.

Compared with other psychotherapeutic methods, the main advantage obtained by using intravenous barbiturates was economy of time. This was particularly so with cases of hysterical amnesia, for which it was regarded as the method of choice. Mathematical evaluation of the results shows that, statistically, barbiturate narcosis produces no significantly better results than other psychotherapeutic methods.

The general technique is described, and the importance of the various steps of the technique in ensuring success is stressed.

The suggestive value of the treatment and the increased confidence of the physician are considered to play an important part in the success obtained.

Intravenous barbiturate narcosis may be described as a tactical aid in the general strategy of treatment of patients suffering from neurosis.

We wish to thank Dr. W. S. Maclay for permission to publish the case material.

REFERENCES

Bleckwenn, W. J. (1930). *J. Amer. med. Ass.*, **95**, 1168.
Campbell, A. M. G. (1938). *Guy's Hosp. Rep.*, **88**, 185.
Hadfield, J. A. (1942). *British Medical Journal*, **1**, 320.
Hauptmann, A. (1934). *Klin. Wschr.*, **13**, 437.
Horsley, J. S. (1936). *J. ment. Sci.*, **82**, 416.
Lewis, A. J. (1941). *Med. Annu.*, Bristol, 271.
Lindemann, E., and Malamud, W. (1934). *Amer. J. Psychiat.*, **13**, 853.
Mallinson, W. P. (1940). *J. roy. nav. med. Serv.*, **26**, 281.
Sargant, W., and Slater, E. (1940). *Lancet*, **2**, 1.
Stungo, E. (1938). *Med. Pr.*, **197**, 382.
—— (1941). *Lancet*, **1**, 507.
Weese, H., and Scharpff, W. (1932). *Dtsche. med. Wschr.*, **58**, 1205.
Wilde, J. F. (1942). *British Medical Journal*, **2**, 4.

TWO CASES OF GUNSHOT WOUND RESULTING FROM UNUSUALLY LARGE MISSILES: RECOVERY

BY

RICHARD CHARLES, F.R.C.S.I.

Surgeon, East Suffolk and Ipswich Hospital

I have removed many large missiles from the human body in treating war wounds, but the history of the following cases is of interest because they involved two of the largest foreign bodies that I have ever taken from the chest or abdomen. In both instances the patients recovered.

Case I: Chest Wound

Flight Sergeant B. was hit by "flak" at approximately 18.45 hours on May 7, 1942. He lost consciousness for a few minutes, and on recovering found himself leaning over his gun-hatch. His under-gunner helped him to undo his harness and placed him on the floor of the aircraft. Towards the end of the journey home to his base he apparently became delirious, and his under-gunner had difficulty in restraining him from firing off Véry lights. About 35 minutes later they landed at an aerodrome.

On admission to S.S.Q., he was greatly shocked, restless, in great pain, cyanosed, and suffering from severe dyspnoea. His blood pressure was 90/50; pulse 140 and very thready. He had a large penetrating sucking wound of the left side of the chest, approximately 3½ by 2 in., situated about 2 in. from the midline at the back, at the level of the sixth and seventh ribs, and running in a forward and lateral direction. A shell fragment which measured 3½ by 5/8 in. (Fig. 1) was found lying beneath the skin over the eighth rib in

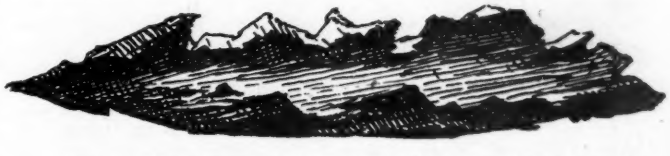


FIG. 1.—Shell fragment (3½ by 5/8 in.) removed from Case I.

the mid-clavicular line, at a distance of 12½ in. from the wound of entrance. During its passage into the chest wall the sixth rib was fractured, and the seventh was shattered for several inches, though the overlying skin had not been damaged. Squadron Leader Anderson controlled the parietal haemorrhage, and covered the wound with a large wet dressing and overlapping layers of adhesive strapping. Morphine 1/4 gr. was given, intravenous serum begun, and 90% oxygen administered by the B.L.B. mask intermittently, and for a short time moderate warmth was applied by a radiant-

heat cradle. A little later the shell fragment was removed under local anaesthesia and occlusive dressing applied.

I saw the patient at the Rest Station at 22.45 hours. His dyspnoea and cyanosis were then less marked; pulse 110 and very thready. There was no apparent intrathoracic bleeding or any sign of tension pneumothorax—the latter not likely to develop in this particular type of wound. He was not, however, in a fit state to be transferred to hospital—a distance of about five miles. During the night two more pints of serum were given, and two further doses of morphine. By 08.00 hours his general condition had slowly but steadily improved, and he was fit to be transferred.

On admission to hospital his blood pressure was 110/70; pulse 116 and of fair volume. Full clinical and *x*-ray examinations were carried out, and during these procedures he was given a transfusion of one pint of blood; he was then transferred to the operating theatre and received a further pint during the course of the operation, which was carried out under gas and oxygen supplemented by local anaesthesia, using 0.5% novocain (anaesthetist, Dr. Pretty). The skin was washed thoroughly with soap and water, dried, and painted with warm tincture of merthiolate. An elliptical incision was made round the wound of entrance, extending forward to the incision previously made for the removal of the missile; the skin was undermined and widely retracted, and the entire tract of the missile, with all layers, including several inches of the comminuted rib, periosteum, and pleura, was excised *en masse* without permitting the knife or other instruments to touch the tract or the infected surface wound. All used instruments and gloves were then discarded. Blood was evacuated from the pleural cavity by suction apparatus, and a hole in the costal portion of the diaphragm was sutured. Attention was then directed to the lung itself and a careful search was made for bone splinters, pieces of clothing, etc. A portion of the lung was found bruised but not lacerated. The operation was completed by intercostal drainage carried out through a Malecot tube, introduced by trocar and cannula, into the ninth intercostal space posteriorly. The wound was freely dusted with sulphanilamide powder. The skin only was sutured as far as the wound of entrance, which was packed with vaselined gauze. By this time the patient's condition was very grave; he was pulseless and cyanosed. A pint of serum was quickly given, and on his return to the ward he had another pint, followed by the usual 5% glucose and saline. Oxygen 90% was administered at intervals, and at 18.30 hours his blood pressure was 120/80, pulse 130 and of fair volume, haemoglobin 50%. Two days later sulphapyridine was begun, and subsequently two further transfusions of blood were given. After this his convalescence was practically uneventful.

On May 18 the sutures were removed and the wound had healed by first intention. On May 20 the Malecot tube was withdrawn from the thorax as there had been no sign of intrapleural infection and only a slight serous blood-stained discharge for the first ten days. The wound of entrance was dressed from time to time, and he was finally discharged on June 1.

In Aug., 1943, a letter was received from the patient informing me that he was fit and well, and that he was back on operational flying in the R.A.F., but was not allowed to fly above 5,000 ft. for the present.

Case II: Wound of Abdomen

Flying Officer K. was admitted to hospital on June 5, 1943, with a gunshot wound of the abdomen. About 05.00 hours, while returning from an operational flight over the North Sea, he was hit by a large fragment of cannon-shell. He stuffed a handkerchief in the large abdominal wound of entrance and gave himself an injection of one tubunic ampoule of morphine. His pilot crash-landed at 06.10 hours; shortly afterwards Dr. Garnett saw the wounded airman and gave him a dose of alopon. At 07.30 hours he was transferred to hospital under my care, arriving at 10.00 hours.

On examination he was pale, sweating, restless, cold, and shocked; pulse 128 and of poor volume, blood pressure 90/70. A preliminary examination revealed a penetrating wound of the lower abdomen, a laceration of the penis, and a superficial wound of the left leg. Prophylactic doses of anti-gas-gangrene and antitetanic serum were administered, and serum drip was begun. Radiographs of the abdomen showed a large foreign body in the pelvis, and there was a smaller one in the mid-third of the left leg. *X*-ray examination of the chest was negative. At 11.30 hours one pint of blood was given, and by 13.30 hours he was fit to be taken to the theatre. A second pint of blood, followed by saline and glucose, was administered during the course of the operation, which was carried out under gas-oxygen and ether (anaesthetist, Dr. Pretty). The parietal abdominal wound measured 3 by 2½ in., and there was gross loss of substance; it was situated just lateral to the outer border of the right rectus and its lower end was about 2½ in. above Poupart's ligament. The hole in the peritoneum was about half the size of the missile. The whole abdomen was thoroughly washed with green soap and water, dried, and shaved. The penis wound was then prepared in the same way, and finally the whole area was painted with warm tincture of merthiolate. Laparotomy was performed through the standard midline incision and a fair quantity of blood in the abdomen was removed by suction. Several small areas of the small bowel were seen to be damaged but not perforated. Two large perforations were found in the pelvic colon running in a longitudinal direction; these were closed in two layers, using fine silk sutures. The damaged areas of the small bowel were then invaginated by pursestring sutures. The foreign body (Fig. 2) was found lying

FIG. 2.—Portion of cannon-shell (1 by 1¼ in.) removed from Case II.

loose in the pouch of Douglas. The peritoneal cavity was sprinkled with sulphathiazole powder and the wound temporarily covered with hot abdominal packs.

Next, after a complete change of gloves and gowns, using a closing-tray of clean instruments prepared beforehand, a double-barrelled colostomy was performed in the left iliac fossa, and a Rankin's clamp applied. Sulphathiazole cream was then applied to the abdominal incision, which was completely closed. The penis wound, which consisted of a severe laceration involving the right side of that organ, dividing one half of the corpus cavernosum, was dealt with again, using fresh instruments and gloves. All devitalized infected tissue was removed, including a portion from each end of the corpus cavernosum, and the latter were brought together by an end-to-end suture, using fine silkworm-gut. The wound was left open, and was dressed with sulphathiazole cream and vaselined gauze. Finally, the parietal wound in the abdominal wall was similarly treated. By 17.30 hours his blood pressure was 120/80, and five hours later 130/86.

During the next three days the patient made fairly steady progress. Nothing was given by the mouth during that time; fluids were administered intravenously, but subsequently he began to take sips of glucose, barley-water, and fruit juice.

On June 10 he complained of a pain in the right chest. Temperature 100–103°. *X*-ray report: "Collapse of the right middle and lower lobes of the lung." A full course of sulphathiazole was begun, and this was continued for seven days. Haemoglobin 69%, W.B.C. 13,000 per c.mm.

June 14.—Respirations 32; pulse 118; swinging temperature 102–102.8°. Still complaining of pain in the right chest, though not so severe. His abdominal condition was satisfactory and the colostomy working well. Radiographs of the chest at this time showed loss of radio-translucency over the whole of the right side, most marked in the middle and lower zones. Haemoglobin, 62%; W.B.C., 28,000 per c.mm.

June 18.—The incisional wound had healed by first intention without the slightest sign of infection. The other wounds had a very mild suppuration, which required occasional dressings.

June 21.—Swinging temperature continued. Night sweats; slight breathlessness but no cough. *X*-ray report: "Several opacities seen in the right side of the chest. These are greater in the middle and lower zones. ? pleural effusion." In consultation, Dr. Ronald Jones confirmed the previous clinical findings. The following is his report: "There were marked dullness, diminished breath sounds, and impaired fremitus over the whole of the right chest, without any obvious displacement of the mediastinum. The fingers were not clubbed."

July 2.—Chest signs seemed to be diminishing, but fever and sweats still continued and lung abscess was suspected.

July 14.—After a few days' dry cough the patient began to cough up purulent sputum, and 10 oz. was produced. This contained pus cells; the predominant micro-organism was the pneumococcus. No tubercle bacilli were seen. Postural drainage was begun.

July 24.—Some 40 to 60 oz. of pus had been coughed up. General condition much better.

July 29.—Temperature normal, sputum very scanty.

Aug. 3.—Temperature and pulse normal for past five days. No sputum. Chest signs: slight diminution of movement of the right thorax with slight impairment of percussion note and air entry. No clubbing of fingers.

The patient was transferred to a Royal Air Force hospital on Aug. 3; thereafter his convalescence was uneventful. A letter was received from Wing Commander G. H. Morley on Nov. 1, informing me that he had successfully closed the colostomy wound and the patient had made a good recovery.

Comments on Case II

This was a case of pulmonary suppuration probably resulting from atelectasis and infection. Alternatively it may have been metastatic, but if so one would not expect the predominant organism to be the pneumococcus. As there were neither clinical nor radiological signs of cavitation, pulmonary suppuration is a more descriptive diagnosis than lung abscess.

The result of postural treatment was very good, and, owing to this and the absence of cavitation, the question of surgical treatment fortunately did not arise.

By using the midline incision in war wounds the abdomen can be opened quickly, and, what is equally important, it can be closed quickly. It is comparatively bloodless, and can be extended upwards and downwards according to the needs of the case.

In colon injuries, perforated or bruised, exteriorization of the damaged loop as a colostomy is the safest procedure; when this is impossible the wound of the intestine should be sutured and a proximal double-barrelled colostomy of the Devone type performed. In cases of injury to the fixed parts of the colon a separate incision in the flank has many advantages.

The suction apparatus is invaluable in abdominal wounds as, in addition to its many other advantages, it reduces the number of swabs used to an absolute minimum, thereby contributing towards a fool-proof organization in the counting of swabs and packs.

It is interesting to record that the pilot officer, who escaped without a scratch, found 120 cannon-shell bases in the cockpit!

[Figs. 1 and 2 are reproduced from drawings by Leonard Squinell.]

A MODIFICATION OF THE INVAGINATION METHOD OF INTESTINAL ANASTOMOSIS

BY

JAMES BURNETT HOGARTH, M.D., F.R.C.S.

Hon. Surgeon, Doncaster Royal Infirmary

In this communication a modified method of performing intestinal anastomosis is described which, it is hoped, will be of use in carrying out this operation quickly and efficiently. The operative technique was devised by me many years ago, and has only recently been employed on the living subject. In view of the measure of success achieved in the cases noted below, which were not ideally suitable for a trial application, I have been encouraged to bring the method to the notice of the profession, before having been able to practise it extensively, in the hope that surgeons in our field hospitals may find it useful.

During the last war Fraser and Dott used the invagination method with satisfactory results in abdominal emergency work in France necessitated through injuries caused by projectiles. They employed the method of temporary occlusion, and although the end-results of their operation and the one to be described are somewhat similar, there are important differences in: (i) the degree of invagination achieved at the site of anastomosis by means of a special instrument devised for this purpose; and (ii) the means of recanalization. Other "aseptic" methods have no doubt been adopted, both in this country and abroad, and any claim to originality on behalf of this method must depend upon the specific use of the two instruments undermentioned—viz., a screw and a pair of sharp-pointed angled forceps. It is hoped that these improvements will lead to the more widespread practice of this type of operation in suitable cases. It effects the union of two temporarily occluded ends of severed bowel and therefore leads to little soiling of the operative field. Preliminary technical investigations were carried out on fresh pig's bowel, and the union obtained was found to be sound and capable of withstanding high water pressure and considerable distension before any sign of leakage occurred round the site of anastomosis.

The special instruments required in addition to those normally available are: (*a*) an instrument of modified corkscrew pattern (Fig. 3); (*b*) a modified StClair Thomson angled forceps; (*c*) a powerful broad-bladed enterotribe, of the Doyen pattern, and means of heating its blades (the means adopted was a small electric heater).

In describing this operation it is assumed that the part to be removed has been isolated, together with sufficient lengths of healthy bowel on both sides of the lesion to enable the union to be effected. From this point the technique employed is as follows:

Technique of Operation

The mesenteric attachments are ligated and divided close to the bowel. This operation is continued on each side of the diseased portion for a distance of one and a half to two inches. Two portions of healthy bowel, adjacent to the diseased part, are now crushed with the enterotribe. Sufficiently wide areas should be crushed to enable the next stage to be carried out. This consists in removing the lesion between ligatures. A "double overhand knot" (Fig. 1) should be used to occlude the healthy bowel-ends,

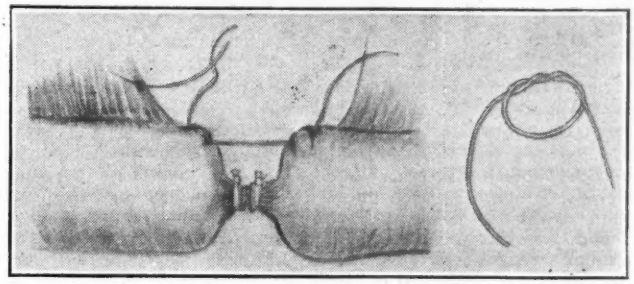


FIG. 1

as these ligatures have to be unloosed by mechanical means at a later stage in the operation. Silk is best for this purpose, as it is much less liable to slip than catgut. For temporary occlusion the pursestring, instead of the stump method, may be adopted so long as the same type of knot is employed. If a heated enterotribe is used for crushing the type of knot is immaterial, as an opening may easily be secured through the "roasted" bowel owing to its friability.

The occluded ends are now approximated, and before invagination are held together by half a dozen interrupted sutures round the circumference of the bowel (Fig. 2). The special "corkscrew" is

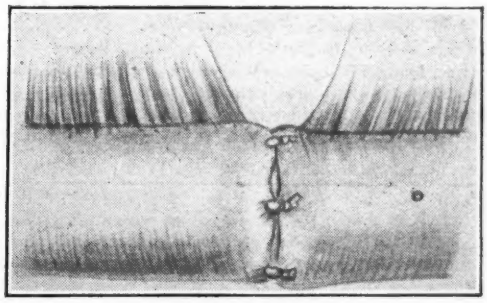


FIG. 2

then inserted into the lumen of the bowel with a screwing movement, in the approximate position as shown in Fig. 3, and partly screwed through the double diaphragm formed by the approximated occluded ends (Figs. 3 and 4).

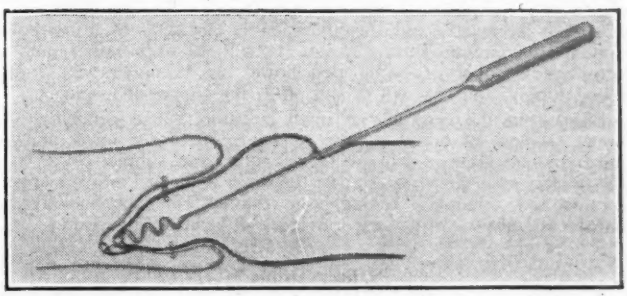


FIG. 3

Invagination is produced by holding the distal part of the bowel in the left hand and pushing the diaphragm, by means of the

"corkscrew," into the distal portion (Fig. 4). This can be done easily when there is no great degree of disparity in the calibre of the two segments to be anastomosed, and to the extent of invaginating the mesenteric attachments. Invagination should be effected up to the mesenteric attachments at least. It should be noted that a greater degree of invagination is produced towards the antimesenteric

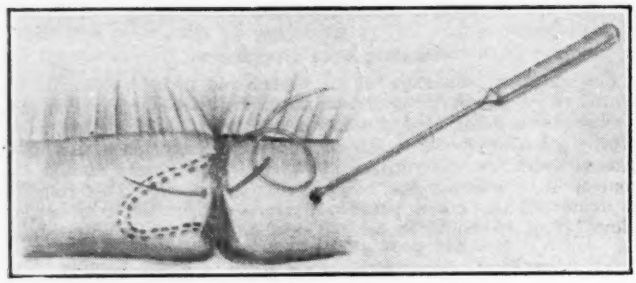


FIG. 4

than towards the mesenteric side of the bowel because the mesentery interferes somewhat with this process. In this way a good blood supply is ensured towards the antimesenteric aspect of the bowel and thus the risk of subsequent necrosis of that border is practically eliminated. A row of Lembert sutures, continuous or interrupted, is now inserted round the site of invagination, a mattress suture being used where the two mesenteric borders approximate.

The "corkscrew" can now be withdrawn and the StClair Thomson angled forceps inserted through the same opening, forcibly pushed through the double diaphragm (Fig. 5), and used in

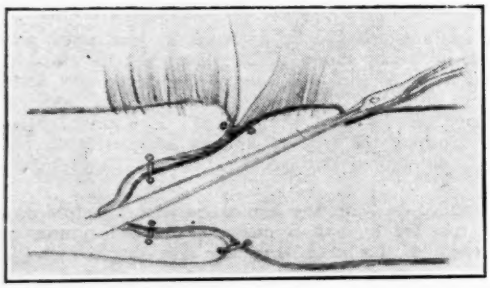


FIG. 5

a scissors-like manner to obtain recanalization. As soon as this is accomplished the forceps are withdrawn with their blades closed, and the opening left after their removal is closed with a pursestring or other form of Lembert suture (Fig. 6). The operation is now

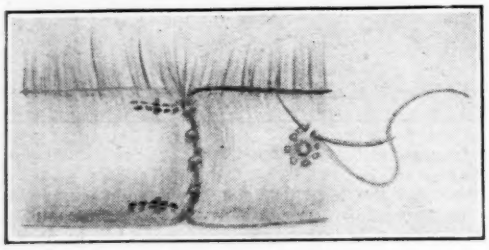


FIG. 6

essentially complete, and the abdomen is closed, with or without drainage as circumstances dictate. It will be appreciated that a considerable collar of invaginated bowel has been deprived of its blood supply, and this will slough off in the course of healing.

[NOTE.—In the case of the small intestine, where generally the upper segment of bowel is more distended than the lower and is much more friable, it will be easier, safer, and simpler to reverse the process of invagination so that the lower is pushed into the upper portion and, continuity having been restored, to invert the invaginated collar by massage—e.g., in cases of acute obstruction.]

Observations

Reference has been made to the fact that invagination methods have already been used in abdominal surgery. Maunsell's method was devised because it imitated the natural process of adhesive inflammation following sloughing. Although used successfully on many occasions, it cannot be classed as an operation approaching the principles of aseptic technique. Simple end-to-end suture, and the various mechanical means of procuring circular enterorrhaphy, have the immediate disadvantage of not producing enough invagination of the bowel edges, with the subsequent risk of bowel necrosis towards the antimesenteric aspect. Ullman modified the operation, using a bobbin similar to that of Allingham.

The most successful mechanical means hitherto used for this purpose is Murphy's button. During the last war, as before mentioned, Fraser and Dott elaborated a method of securing end-to-end continuity of bowel by the device of temporary occlusion, without securing much invagination, no form of internal splint being used. The method above described may therefore claim to follow the principles of the Fraser and Dott operation and to achieve the greater degree of invagination secured by Maunsell.

Conclusions

This operation is submitted in the belief that it is: (*a*) comparatively aseptic if properly performed; (*b*) rapid and efficient in suitable cases; (*c*) a method providing free anastomosis with little risk of leakage or necrosis; (*d*) isoperistaltic in action and has, in the cases in which it has been adopted, resulted in natural bowel action and only slight post-operative distension and pain; (*e*) a suitable method of union in cases of excision of the caecum or part of the large bowel.

Although opportunity has not hitherto occurred of adopting this method in cases of injury to the small intestine or to gunshot wounds where the degree of injury necessitates excision, it would appear to be particularly suitable.

The following are condensed notes on three cases, all of which are concerned with operations upon the large bowel.

Notes on Three Cases

Case 1.—A woman aged 49. Referred by Dr. Milligan, suffering from carcinoma of the caecum. Very thin and anaemic. Large palpable mass in right iliac fossa. Operation Jan. 14, 1942. A hemicolectomy was performed, and junction of ileum to transverse colon effected by above method. For five days post-operative progress was good and the bowels opened naturally on the third day. On the second day there were signs of inflammation at the site of saline injection. She died from septicaemia on Jan. 24. The post-mortem report stated that the abdominal cavity was clean and the junction was good and patent, with no sign of leakage. There were septic infarcts in the lungs, and abscesses were present in the abdominal wound and behind the posterior peritoneal suture line. The site of the primary septic focus was undetermined, but it was gratifying to find the abdomen clean.

Case 2.—A woman aged 36. Referred by Dr. Shields. Acute intestinal obstruction due to carcinoma of transverse colon. A transverse colostomy was performed by the R.S.O. (Mr. Adlington). This successfully relieved the obstruction. Later (May 7, 1941), as the patient was unhappy about her colostomy, I performed the operation described, through a vertical incision outside the left rectus. Having excised the growth, temporary occlusion and approximation of the two ends of bowel were effected through this opening. Invagination and recanalization were carried out through the old colostomy opening. As a safety measure the colostomy was left open and a T-shaped drainage tube temporarily inserted to ensure the patency of the anastomosis and relieve flatulence. After the return of normal bowel movement the tube was removed and the opening closed by operation. She was discharged completely healed and with normal bowel movements.

Case 3.—A man aged 43. Referred by Dr. Milligan with tentative diagnosis of Crohn's disease. Operation Sept. 9, 1942. Resection of caecum and ascending colon performed. Anastomosis was effected as above. Growth proved to be an adenocarcinoma of caecum. Subsequent progress was very satisfactory. Natural bowel movements returned and flatus was freely passed on the fourth day without aperients. Radiological report by Dr. Miller on barium meal administered on Oct. 2: "Barium passed rapidly through intestinal tract. After four hours no barium in small bowel. After 24 hours all meal was evacuated." The patient was discharged on Oct. 28 with normal bowel action, and is now (May, 1944) quite fit and well. He has carried on his work on the railway for the past year.

My thanks are due to Miss F. M. Lambert, A.R.C.A., for the excellence of the drawings illustrating the operation, and to my son, Mr. T. B. Hogarth, for assistance in the preparation of this article.

METHOD OF LOCATING A MOBILE RENAL CALCULUS AT OPERATION

BY

B. W. GOLDSTONE, B.Sc., M.B.Lond., F.R.C.S.Ed.
Major, R.A.M.C.

The case described below presents several interesting features which will be apparent; but its outstanding feature is that the stone had considerable freedom of movement within the bounds of the kidney. According to its location different syndromes were produced so as to cause, at first, some difficulty in the diagnosis. Because of its changing position, it might have been difficult to locate at operation; a special technique was therefore devised.

When a small stone is known to be somewhere "in the substance of the kidney" (i.e., somewhere in the calical system) several methods have been available for its extraction. In the past the kidney has been split from pole to pole in the hunt for vagrant stones. The method has been used very often; death from post-operative haemorrhage is not uncommon as a sequel. Twelve years ago two patients lay in adjacent beds after a kidney-splitting operation. One died of post-operative haemorrhage. The other announced that he would have a haemorrhage and die; his statement proved correct. The frequency of this complication is not surprising when one considers the immense blood supply of the kidney. One-third of the heart's output goes into the renal arteries (Pickering, 1943). By another estimate, all the blood in the body—about 10 pints—passes through the kidney vessels in three or four minutes (Wright, 1941).

As an alternative to large-scale kidney-splitting, the kidney may be carefully palpated in an endeavour to feel the stone before cutting. This is rarely successful, and then only with a large stone. If this fails it is recommended to "needle" the kidney. The needle can sometimes be felt to grate upon the stone. Even if one is lucky enough to impinge on the stone it may, if free in the calix, be pushed quietly along without yielding any grating sensation. The kidney may also be radiographed on the operating table after delivery through the wound. A casette is wrapped in a sterile towel and the kidney laid upon it for a picture to be taken. The method needs a long flexible renal pedicle, which is often not available. In that event the casette cannot be placed close up to or flat against the kidney, and the shadow of that viscus is therefore grossly distorted in the photograph: kidney and stone appear in the picture, but it is impossible to say exactly where the stone lies in relation to the calical system.

The method under description involves none of these disadvantages. It entails insertion of several straight needles into the kidney, which is then radiographed. The needle nearest to the calculus guides the incision. The method is obviously "inspired" by the modern technique for nailing the fractured neck of the femur (Farquharson, 1939).

Case Record

A sailor, already diagnosed as a case of appendicitis, was admitted to a tropical military hospital. At a previous port he had been in a civilian hospital, where appendicitis had also been diagnosed; no operation had been undertaken, as the condition resolved quickly.

Examination showed a heavily built man of 38. He looked quite well and comfortable, and he was apyrexial. He said that he had been subject to attacks of colicky pain in the upper abdomen for several years. The pain was always worse in the right hypochondrium, where it usually began; it then radiated horizontally to the back. He suffered from indigestion, but there had never been jaundice. During the attacks of pain he had no frequency of micturition. There were no physical signs except the Murphy–Moynihan sign (inhibition of expiration on deep pressure over the gall-bladder). Gall-stones were provisionally diagnosed; cholecystography was ordered. This showed a normal gall-bladder shadow. But behind it was a shadow that could have been due to a calculus in the renal pelvis. Intravenous pyelography showed that this shadow was within the shadow of the renal pelvis: hydronephrosis was present as judged by the clubbed calices. The urine contained no pus cells. Under cystoscopy with intravenous injection of methylene blue the dye appeared from the left ureter in 3½ minutes. There was no efflux from the right ureter. Evidently the stone was completely blocking the right uretero-pelvic junction.

The next day he had a brisk rigor. Temperature rose to 103° and he looked very ill. The urine was still free from bacteria and pus cells. Malaria is rife here, and although the parasite was not found in his blood, a white count showed 14% monocytes. This was consistent with malaria, and he was accordingly given a full course of mepacrine. In a few days the fever subsided. Right retrograde pyelography was then undertaken. This showed that the stone was no longer wedged into the uretero-pelvic junction; it was lying in the lowest calix. Urine draining from the right ureteric catheter was loaded with pus and *B. coli*.

It was now evident that the febrile attack had been due not to malaria but to infection of the hydronephrosis; no pus had then appeared in the urine because the pelvis had been blocked by the stone. A course of sulphathiazole was given to control infection of the right kidney. His blood urea was then 85 mg. per 100 c.cm. This was surprising; I would have expected the sound kidney to control his blood urea. B.P. 120/80. After a further course of sulphathiazole his blood urea had sunk to 45 mg. per 100 c.cm., though *B. coli* was still present on urine culture.

This was judged to be the optimum time for operation. Preliminary radiographs showed that the stone was still in the lowest calix. Under general anaesthesia the kidney was exposed by Mayo's incision. Only its lowest pole was visible, projecting beyond the last rib. This rib was therefore removed. Even then the kidney was delivered with difficulty. The pedicle was short and could not be properly seen.

With such a mobile stone it was quite probable that shift could have occurred during delivery. Three round-bodied straight needles were pushed into Brodl's line, blunt end first. They covered an area which probably contained the stone, and were pushed in so that they converged radially upon the centre of the pelvis. An *x*-ray casette was enclosed in a sterile towel, but it was impossible to obtain proper apposition of casette and kidney. The picture taken was expected to show much distortion on the kidney shadow; it was rapidly developed. The expected distortion was revealed; but it was immaterial, because the stone was clearly seen to be close to the highest needle. It is unnecessary to set a line of needles at right angles to the first line; the stone must be somewhere on a line radiating from the chosen spot on Brodl's line to the centre of the kidney pelvis.

A very small incision was made along Brodl's line immediately above this needle. The incision was deepened at once in the direction of the pelvis. This exposed the stone, which was seized and removed. It had the spiked appearance of an oxalate calculus. The kidney was sutured with fine gut on an eyeless needle over a free muscle graft. Recovery was rapid and uneventful except for post-operative pyrexia and some inevitable small-scale haematuria; both cleared up rapidly.

Discussion

It is well known that a renal stone may produce different syndromes according to its locality. In this case there was an opportunity to observe four clear-cut syndromes produced by a single mobile stone. Thus it could give at different times a good imitation of four different diseases according to the stage in which the case was seen by different surgeons.

1. Symptom-free but with pyuria (at this stage the patient might easily have fallen a victim to the pernicious diagnosis of "pyelitis"). The stone was snugly lodged in the calix.

2. The stone emerged, to impact suddenly in the uretero-pelvic junction. This caused upper abdominal pain, principally right-sided. Owing to complete blockage of the right renal outflow there were no urinary changes. Thus the renal origin of the pain was missed and the patient was believed by a surgeon to be suffering from the "first-stage" pain of appendicular colic.

3. Impaction persisted, but the pelvic musculature tired of its peristaltic efforts. The pelvis dilated into a hydronephrosis. This caused a dull pain in the back. The sequence of right epigastric colicky pain which finally radiated to the back, accompanied by a story of chronic indigestion, suggested the diagnosis of gall-stones. The Murphy–Moynihan sign was easily, though wrongly, elicited, and this helped to round off the diagnostic picture.

4. The hydronephrosis became infected. The temperature rose rapidly and the clinical appearance was strongly suggestive of malaria. Again the ever-present false scent was provided by an increased mononuclear count. Antimalarial treatment was given, and in a few days the temperature was normal. But really improvement had been due to dislodgment of the stone, allowing the infected hydronephrosis to drain.

There remains for discussion the raised blood urea. One kidney alone is quite capable of keeping the blood urea within normal limits. It follows that this particular left kidney must somehow have been affected by the infected hydronephrosis of the right kidney. This is a remarkable conclusion, and it is difficult to understand in terms of any current theories of renal

secretion. It is true that several cases have been reported in which unilateral infected nephrolithiasis has caused a general rise of blood pressure. It probably acts by effecting a chemical constriction of all arterioles, including efferent glomerular arterioles but excluding afferent arterioles (Pickering, 1943). Thus the glomerular pressure in the sound kidney should rise and, if anything, more urea should be excreted, because urea is probably secreted by a process of mechanical glomerular filtration and not by tubular secretion. In this patient another unknown mechanism must have been involved, because there was no general rise of blood pressure and there was lessened urea excretion as judged by his raised blood urea.

Summary

A mobile renal calculus, according to its different positions, so changed the clinical picture that the following conditions were successively diagnosed: appendicitis, gall-stones, renal calculus, malaria.

During the phase of infected early hydronephrosis the opposite healthy kidney was affected; no explanation has been found for this.

A method is described for accurately locating the stone at operation. Thus only a small incision in the renal substance was needed; this minimized the risk of gross post-operative haemorrhage.

REFERENCES

Farquharson, E. L. (1939). *Illustrations of Surgical Treatment*, E. and S Livingstone, Edinburgh.
Pickering, G. W. (1943). *British Medical Journal*, **2**, 1, 31.
Wright, Samson (1940). *Applied Physiology*, 7th ed., Oxford University Press, London.

Medical Memoranda

Fulminating Diphtheria in a War Nursery

A case of fulminating diphtheria in a young child these days must be unusual; when that child has been immunized it becomes something of a rarity. It is therefore hoped that a study of the following cases will prove of interest, and that a few suggestions will help those practitioners who have charge of war nurseries to prevent a similar occurrence.

CASE I

P. L., a boy aged 4, was seen at midnight on March 5, 1944. He had been perfectly well in the morning, but was put to bed after lunch because there seemed to be difficulty in swallowing. He resented being put to bed. Examination of the throat showed nothing abnormal except enlarged tonsils, which were reddened, and a slight increase in temperature. When seen the child was not unduly toxic. Temperature 103°; pulse 170; tongue furred; tonsils grossly enlarged, red, with small whitish patches; some nasal discharge. The cervical glands were enlarged and gave the "bull-neck" appearance. On auscultation heart sounds were quite strong; no abnormal sounds in the chest. A rigor occurred after examination. A clinical diagnosis of diphtheria was made and a throat swab taken. Anti-diphtheritic serum (4,000 units) was given, and sulphanilamide in adequate doses to combat haemolytic streptococci. Early the following morning (March 6) the child's temperature was 101°, the pulse 180, and he was toxic. There was obvious membrane on both tonsils, although the breathing was not obstructed. On auscultation heart sounds appeared weaker than on the previous occasion. A further 2,000 units of A.D. serum were given and arrangements made to send the child to an isolation hospital.

On admission 60,000 units of A.D. serum were given and tracheotomy was performed as a last resource; but the patient died.

Throat Swab.—(1) Morphological diphtheria bacilli present. (2) *C. diphtheriae* present. (3) *C. diphtheriae* present, gravis type. No bacteriological evidence of Vincent's angina or haemolytic streptococci.

CASE II

A. L., twin sister of Case I, complained of a sore throat at 10 a.m. on March 6. She seemed very well; temperature 99°; pulse 130; tonsils reddened only; tongue not furred. At 2.30 p.m. the same day a greyish-yellow patch had appeared upon both tonsils, although the general condition of the patient seemed good. A.D. serum was given, and the child is recovering after being removed with her brother to an isolation hospital. Throat swab—third report: *C. diphtheriae*, gravis type, present.

INVESTIGATIONS AND PROPHYLAXIS

There were 39 children and about 10 staff at the nursery. The problem was to find the carrier and check further outbreaks. The procedure in this nursery is to immunize each batch of children as they arrive, at the conclusion of their medical examination. A.P.T. is used; dosage 0.3 c.cm. first injection, 0.5 c.cm. second injection. Practically all the children had been immunized except a batch of about six to eight who were waiting for their second injection. Some of the staff had not availed themselves of immunization. One child (J. W.) had been known to have had diphtheria previously, and was admitted to the nursery in Sept., 1943.

Nasal and throat swabs both of children and of staff were taken on March 7, 1944, with the following results:

	Nasal Swabs		Throat Swabs	
	1st Report	2nd Report	1st Report	2nd Report
Children ..	All neg.	J. W. pos.; rest neg.	All neg.	All neg.
Staff ..	„	All neg.	„	„

J. W. therefore was the carrier. He was immediately isolated. The third report showed *C. diphtheriae* present, gravis type; nasal swab. This child was immediately removed to an isolation hospital. Two of the staff and one child were given prophylactic doses of 2,000 units of A.D. serum. There have been no further cases.

SUMMARY AND COMMENT

A case of fulminating diphtheria occurred at a war nursery; the first patient, who had been immunized, succumbed. His twin sister also contracted the disease, but is recovering; she also had been immunized.

Opportunity was given to observe the development and rapid extension of the membrane.

The carrier was found by means of a nasal swab only. The child had had diphtheria, but had recovered and was admitted to an unsuspecting nursery. It had been in daily contact with 39 children for about six months, but no outbreak occurred until March, 1944.

Investigations showed that the child who died was immunized in Devon in 1941: Aug. 12, 0.5 c.cm. A.P.T.; Sept. 10, 0.1 c.cm. A.P.T.; Oct. 10, third dose, but no stated amount. *Doubt, however, is thrown upon whether A.P.T. was the material used.*

It is suggested: (1) Before proceeding to a war nursery (or to school or similar places) children should be immunized. (2) Those who have been immunized two or three years previously should be re-immunized before entry. (3) Where this is not possible, children should be immunized on their first day of entry. (4) Records should be kept of the name and age of the child, the material used, dosage, where immunization was carried out, and, if possible, the name of maker of material used. (5) Children should have throat and nasal swabs taken for K.L.B.; this will show carriers. (6) Any child known to have had diphtheria should be isolated until the results of the throat and nasal swabs are known. This is not foolproof, as a swab which was negative may after a cold be positive. (7) Where there is doubt that the condition may be either a diphtheritic throat or a haemolytic streptococcal throat, isolate immediately and give A.D. serum without waiting for the result of the swab.

My thanks are due to the medical superintendent of Lincoln Isolation Hospital and, for the bacteriological data, to the E.M.S. Pathological Laboratory, Lincoln.

GORDON STRONG, M.B., B.S.Lond.

Adenocarcinoma of the Small Intestine in Father and Daughter

Carcinoma of the small intestine is comparatively rare, accounting for about 3% of all intestinal cancers (Ewing, 1940). At the Mayo Clinic only 76 cases of small-gut carcinoma had been recorded up to 1936. Furthermore, intussusception after the first or second year of life is also rare, and Choyce (1932) states that not more than 12% of all cases of intussusception occur in patients over 10 years. Accordingly the following two cases of intussusception of the small gut caused by adenocarcinoma and occurring in father and daughter appear to warrant publication.

CASE REPORTS

Case 1.—A coppersmith aged 43 was admitted to Llandough Hospital, Cardiff, on June 4, 1940. He gave a history of attacks of abdominal pain for 12 years, relieved by vomiting and the passage of flatus, and on a few occasions had passed some blood in the motions following the attacks. A barium meal showed a normal stomach and the barium enema a distended colon. The occult blood was positive. While in hospital he continued to have attacks of abdominal pain, and when seen in a severe attack on June 23 he presented the features of a small-gut obstruction. Laparotomy, performed by Mr. W. D. Lovelock-Jones, revealed a jejuno-jejunal intussusception, which was easily reduced. Examination then showed that the apex of the intussusception had been occupied by a tumour, and accordingly about 6 in. of gut containing the tumour was excised and continuity re-established by end-to-end anastomosis. Convalescence was uneventful, and he has remained well since.

Pathological Report.—"The tumour has a structure superficially resembling an adenomatous polyp but in many areas showing disorderliness suggestive of adenocarcinomatous transformation. The epithelial cells in many parts are distinctly hyperchromatic and have an anaplastic appearance. In some areas the demarcation between epithelial cells and the supporting connective-tissue framework is disorderly, and there is in parts a heavy infiltration of inflammatory cells. On the whole the appearance is suggestive of a low degree of malignancy."

Case 2.—A girl aged 16, a shop-assistant and daughter of the above, was admitted to Llandough Hospital on Feb. 3, 1943, with a history of abdominal pain and vomiting for about 24 hours, the bowel action being normal. On examination the temperature was 100° and the pulse rate 126 a minute. There was marked tenderness around the umbilicus and in the right iliac fossa, but no mass was palpable. Immediate laparotomy was performed (D. B. E. F.); this revealed an ileo-ileal intussusception. Reduction by the usual technique was attempted, but the intussuscipiens then split for about 4 in. In view of this, enterectomy was performed and approximately 14 in. of gut was removed and continuity re-established by end-to-end anastomosis. Post-operative progress was satisfactory, and a year later she is symptomless.

Pathological Report.—"The specimen consists of a resected portion of small intestine 14 in. in length. Ten inches of it, measuring from one end, is deeply congested and shows a condition approaching gangrene. The remaining 4 in. is only slightly engorged and thickened. At the juncture of the two parts there is a pedunculated polyp growing from the wall into the lumen. It is about 1 in. in diameter and roughly spherical, but has an uneven nodular surface and is attached by a thick pedicle. Its surface is irregularly blood-stained. In section the polyp does not show the usual clear demarcation between the glandular part which covers the surface and the fibrous part which forms the pedicle, and an appearance is produced as if there was some degree of invasion of the deeper tissues by the glandular elements. Histologically, the appearance is that of an adenocarcinoma. There is a disorderliness in the arrangement of the gland structures which is not seen in the simple adenoma of the intestine. Gland tubules are irregularly scattered through the connective tissues in the deeper layers and even in the pedicle, and the gland cells show a considerable degree of anaplasia."

It was noted that both patients presented a diffuse brownish pigmentation of the lips and face. On investigating the family history it transpired that the father's brother showed similar pigmentation, and he had been a patient in this hospital in 1935 complaining of attacks of abdominal pain, with the passage of blood and mucus per rectum. A diagnosis of mucous colitis had been made. His health is now satisfactory.

COMMENTARY

The feature of interest is the occurrence of adenocarcinoma of the small gut in father and daughter, causing intussusception. As regards the prognosis of small-gut carcinoma, it is interesting to note that of 31 cases treated at the Mayo Clinic (Rankin and Mayo, 1930) the average duration of life after operation was one year. Harries and Harrison (1935) record two cases of primary carcinoma of the small intestine. Both patients died within three months of the operation, the first with progressive debility and anaemia, the second with metastases in the chest. Mayo and Nettrour (1937) state that the prognosis of carcinoma of the small intestine is unsatisfactory, regardless of whether or not the growth can be removed.

I wish to express my thanks to Prof. J. B. Duguid for the pathological reports, and to Mr. D. J. Harries for his encouragement to report these cases.

D. B. E. FOSTER, B.Sc., M.B., B.Ch., F.R.C.S.Ed.,
Resident Surgeon, Llandough Hospital, Cardiff.

REFERENCES

Choyce, C. C. (1932). *A System of Surgery*, 3rd ed., **11**, 386, London.
Ewing, J. (1940). *Neop astic Diseases*, 4th ed., p. 722, Philadelphia
Harries, D. J., and Harrison, C. V. (1935). *British Medical Journal*, **1**, 923.
Mayo, C. W., and Nettrour, W. S. (1937). *Surg. Gynec. Obstet.*, **65**, 303.
Rankin, F. W., and Mayo, C. (1930). Ibid., **50**, 939.

Congenital Deformity of the Ribs

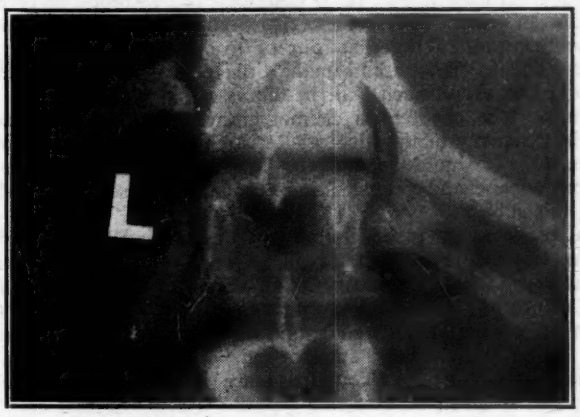
Although clinical interest is mainly concerned with supernumerary ribs in the cervical region, a recent case of deformity of the lower ribs seems unusual enough to be worthy of record.

CASE REPORT

A young woman aged 26 was said to have swallowed a pin, and during radiological examination of the alimentary tract a curious abnormality of the eleventh and twelfth ribs on the right side was discovered. The radiograph of this region (see Fig.) shows the first part of the right eleventh rib curving almost vertically downwards to the level of the intervertebral disk between the eleventh and twelfth thoracic vertebrae, thus forming a kind of neck. The main shaft of the bone then turns away to pursue a normal outward and downward course, but at a considerably lower level than the corresponding rib on the left. At the angle between "neck" and shaft the bone is somewhat thickened, particularly below, and the inferior surface presents a straight facet which articulates with a similar facet forming the top of a short stout process arising from the upper border of the twelfth rib adjacent to the head of the bone. All other ribs were normal in shape and number; there were no other bony processes, and, although the patient had a scoliosis, radiographs of the spine from the sixth cervical vertebra to the sacrum showed no hemivertebrae.

COMMENT

Congenital deformities are described by Brailsford (1935) as bifurcation of the anterior extremity, or fusion with an adjacent rib or ribs just beyond the tubercles, the latter deformity being associated with multiple hemivertebrae of the dorsal spine and large gaps in the bony framework of the thorax. Under the heading of developmental abnormalities, Brailsford also refers to the bands of bone attached to the ribs in myositis ossificans progressiva, and to osteomata seen in cases of multiple exostoses.



Radiograph showing congenital deformity of the eleventh and twelfth ribs on the right side

In the case reported it was at first thought that the buttress of bone arising from the twelfth rib might be an osteoma or an ossification in the soft tissues. However, the original radiographs showed no other bony processes, and when, in view of a possible myositis ossificans, the thorax was *x*-rayed again twelve months later no further changes were seen. Moreover, the condition of the eleventh rib is clearly an alteration of shape, presumably developed before ossification took place, and therefore being a true congenital deformity. It does not, however, conform to Brailsford's description, since the ribs are not actually fused and there are no hemivertebrae, and I can offer no suggestion to explain such an unusual development.

Maryport, Cumberland. J. D. H. BIRD, F.R.C.S.

REFERENCE

Brailsford, J F. (1935). *The Radiology of Bones and Joints*, p. 391, London.

Rupture of Atheromatous Abdominal Aorta

The rarity of complete rupture of an atheromatous plaque combined with the clinical picture of an acute abdomen forms a syndrome interesting enough to merit publication.

A man aged 67 was admitted to hospital with acute abdominal pain; the pain was severe and had come on suddenly at 11 o'clock the previous evening, about half an hour after a meal, since when it had persisted. There was no associated nausea, constipation, or other symptom, and it was located mainly in the right side of the abdomen. On admission his temperature was 97° and his pulse 88. The abdomen was tender and rigid, both in the right hypochondrium and in the right loin, which also contained an indefinite swelling. In the absence of any more definite signs, a non-committal diagnosis of an intra-abdominal catastrophe was made.

At operation a small amount of slightly blood-stained fluid was found in the peritoneum; all the abdominal viscera were normal, but an obvious retroperitoneal haemorrhage was found, mainly on the right side spreading downwards. Pulsation was present in both common iliac arteries, and it was decided that the haemorrhage probably arose from the rupture of an aneurysm of the right renal artery; the abdomen was therefore closed. The patient collapsed soon afterwards and died.

Post-mortem examination revealed widespread severe atheroma of the abdominal aorta, which was thin and friable and contained ulcerated and partly calcified patches. Just above the bifurcation of the aorta one of these atheromatous ulcers had ruptured and produced a large mass of retroperitoneal blood-clot, chiefly on the right side. About a pint of fluid blood was found free in the peritoneal cavity.

My thanks are due to Mr. V. Glendining for permission to publish this case and to Dr. D. M. Vaux for performing the post-mortem examination.

CYRIL BORODA, M.B., B.S.,
House-surgeon, Peace Memorial Hospital, Watford.

Reviews

INFECTIOUS FEVERS

Clinical Practice in Infectious Diseases. For Students, Practitioners, and Medical Officers. By E. H. R. Harries, M.D., F.R.C.P., D.P.H., and M. Mitman, M.D., M.R.C.P., D.P.H., D.M.R.E. Second edition. (Pp. 570. 22s. 6d., plus 8d. postage.) Edinburgh: E. and S. Livingstone. 1944.

The second edition of this book is a great improvement on its predecessor. It is larger than the first edition by more than 100 pages, contains a full list of references, and deals not only with the clinical and administrative aspect of fevers but with their history and their epidemiology, bacteriology, and immunology. It may now be fairly described as a textbook on fevers and even a work of reference. It is, moreover, well up to date. The literature of the past four or five years is dealt with in great detail. The authors make little contribution of original work, but show much skill in the assessment of the work of others. The chapter on chemotherapy is a model of précis writing, mostly of the Medical Research Council's War Memo. No. 10. It would be difficult, however, to find anywhere a more concise and yet satisfying account of present knowledge on this subject.

Cross-infection in hospitals in particularly well done, and a good account is given of the newer work on bacterial contamination of the air by dust and of the measures suggested for its control. The new work on meningococcal infections, on the pathogenesis of poliomyelitis, and on infective and other forms of jaundice is clearly summarized. Lobar pneumonia and anthrax have not yet found a place in the book. A good account is given of epidemic typhus. As in the first edition, one of the best chapters is that on haemolytic streptococcal fevers. In the way of minor criticism might be mentioned the retention of the intradermal test for hypersensitiveness to serum, although dermal and general sensitivity are recognized to be different; the low estimate of incidence of post-vaccinal encephalitis (1 per million); and the too casual dismissal of the aerial theory of convection of smallpox.

This book may now have a greater appeal to the senior reader than to the student. The practitioner, the general physician, and the health officer will find in it a very up-to-date and valuable presentation of modern ideas on fevers.

DERMATOLOGY AND SYPHILOLOGY

The 1943 Year Book of Dermatology and Syphilology. Edited by Marion B. Sulzberger, M.D., and Rudolf L. Baer, M.D. (Pp. 584; illustrated. $3.00 post paid or 19s.) Chicago: The Year Book Publishers; London: H. K. Lewis and Co.

The American *Year Book of Dermatology* has now established itself, and its appearance is welcomed by all those who are interested in the manifold aspects and ramifications of this subject. For eleven years it was under the joint editorship of Dr. Fred Wise and Dr. Sulzberger, but Dr. Wise has now retired and is succeeded by Dr. R. L. Baer, and the introduction to the current volume contains an appreciation of Dr. Wise's services and talents by the new senior editor.

The yearbook maintains the characteristics which have always been associated with it of a comprehensive review of the chief advances in dermatology during the previous twelve months, and is well illustrated. Much is done by the editors for the relief of boredom in their readers. Among other things there is a questionary on the cover consisting of twenty searching questions which may well be addressed to those who consider themselves dermatologists, for testing the modernity of their knowledge of the subject. For example, "What are the three commonest disabling complications of 'athlete's foot,' and what is an effective therapy for each?" Again, "What seven skin conditions may be caused by exposure to cold?" It need hardly be added that answers to all the questions will be found in the yearbook itself, which becomes, therefore, a sort of dermatological catechism.

The special problems resulting from the present world war receive adequate consideration. It is to be noted that the tannic acid treatment of burns, which was commended in the last volume, is now recognized as being "out" officially, but we fancy that the editors themselves still have a certain hankering after it. The editors have always begun their volume with an essay on some topic of special interest to the general practitioner, and this year there is a long chapter on skin tests and their application; it is very comprehensive and well worth study. While emphasizing the value of patch tests in the management of allergic dermatoses they do not hesitate to point out the difficulties and limitations of this method. Included in this chapter is a list of the various bodies in relation to which useful information may be obtained by patch testing. The large number of these substances shows how important the subject has become in dermatology.

SAVILL'S MEDICINE

Savill's System of Clinical Medicine. Edited by E. C. Warner, M.D., F.R.C.P. Twelfth edition. (Pp. 1,168; illustrated. 30s.) London: Edward Arnold. 1944.

Dr. T. D. Savill first published his classical *System* about 36 years ago. It is distinguished by approaching the study of medicine from the symptoms and tracing from these effects to the morbid cause. The sequence of the argument is that which should be adopted in the examination of a patient. He died in 1910, and his widow, Dr. Agnes Savill, has brought out the successive revisions until this one, for which Dr. Warner has the chief responsibility, though he acknowledges her helping hand in the background. The difficulties of producing in these days a new edition of a work to which many authors contribute may well be imagined. It is almost impossible to obtain the co-operation of contributors serving abroad, and during a war medicine tends to produce in rapid succession new discoveries and aspects which must be dealt with. The editor has overcome these difficulties to a remarkable degree, and those who have come to value "Savill" in the past will find this edition in no way inferior to its predecessors.

The discussion of psychological disorders has now been taken out of the section on diseases of the nervous system. The classification of diseases of the blood has been revised to bring it more closely into line with the Savill tradition and to incorporate the many advances which haematology has made in recent years. Dr. Geoffrey Evans explains the mechanism of hypertension in terms of current opinion as an increase in peripheral resistance determined by narrowing of the very small arteries and arterioles, and caused in its turn by the secretion of a pressor substance from the kidney as a reaction to reduction of intrarenal pulse pressure. Accordingly the section on nephritis, especially its chronic form, has had to be largely rewritten. The section on diseases of the thyroid has also been massively revised in accordance with modern teaching. New tables and figures have been added, more notably those which indicate the uses of the sulphonamide preparations and illustrate the *x*-ray findings in pyorrhoea and apical abscess. Entirely new subject-matter includes the carotid sinus, effort syndrome, mass radiography of the chest, the Rh factor, immersion foot, psychopathic personality, occupational therapy, and many other topics which have recently become of first-rate importance. The index is not really full enough for a reference book of this complexity.

Notes on Books

Synopsis of Materia Medica, Toxicology, and Pharmacology, by Dr. F. R. DAVISON, is published at 32s. 6d. by Henry Kimpton. Several authors have compiled synopses of this kind, but few of them have been works to recommend. This synopsis, now in its third edition, is an exception, for it can be recommended warmly as a useful work of reference for medical men. Like most American books it is well arranged and well printed. Drugs are classified according to their main site of action, whether on the nervous system or on muscle. The chemical composition of each substance is given, usually also its structural formula, its solubility, its pharmacological action, its toxic effects, and its therapeutic uses. The book contains forty illustrations mostly demonstrating the pharmacological action. Each chapter ends with a list of original papers and books which should be sufficient to enable the reader to follow any line as far as he wishes to go. Books of this kind have a period at which they are at their best. For the first two or three editions they improve as the author takes note of his omissions. Later they deteriorate as the basic matter becomes out of date. This book is now in its best period. The author has successfully coped with the difficulty of becoming acquainted with the great advances in many fields. Later he may not be able to do so, unless, as few authors do, he writes the book afresh. It is true that most of the literature referred to is American, but it must be admitted that American literature now covers a very wide field.

Preparations and Appliances

A MAINS-OPERATED SINGLE-CELL PHOTOELECTRIC COLORIMETER

Mr. C. J. O. R. MORRIS, Ph.D., writes from the Medical Unit and the Clinical Laboratory, the London Hospital:

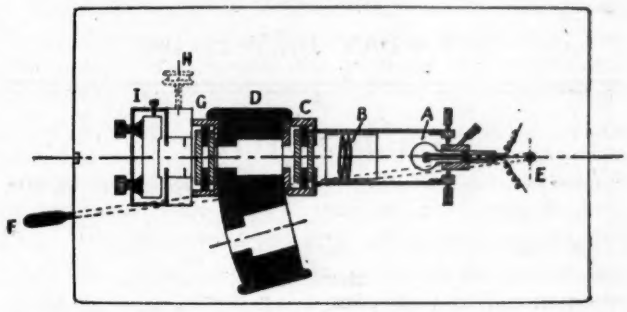
Colorimetric methods of analysis have always been used extensively in clinical biochemistry, largely owing to their convenience and rapidity. Such methods have, however, been considered less accurate than volumetric methods owing to the subjective error of colour matching. The advent of photoelectric methods of colour measurement has now removed this objection, since it is possible to measure colour intensity with an accuracy of ± 0.5%, compared with about ± 2% for the best visual measurements. Even the last figure is rarely achieved in general laboratory practice, and, in addition, the photoelectric method completely obviates the subjective factor. It is thus evident that the photoelectric colorimeter is a very valuable tool for the clinical biochemist, as it enables him to put his colorimetric analyses on a standard of accuracy comparable with volumetric methods, while retaining the advantage of rapidity for multiple analyses associated with colorimetry.

The design of photoelectric colorimeters has been studied very extensively, and two types of instrument have been evolved. The first of these is the twin photocell type, in which two photocells connected in opposition are illuminated simultaneously, and the "unbalance" current caused by interposing the coloured solution to be measured in one light path is compensated by optical or electrical means, a galvanometer being used as null point indicator. The amount of compensation necessary is a measure of the light transmission of the solution. Certain examples of this class have the advantage that variations in light intensity of the source are automatically compensated, since they affect both photocells equally. This is, however, not necessarily true for all such instruments, since Müller (1939) has pointed out that certain circuits have the doubtful advantage of only giving complete compensation when the solution to be measured has 100% light transmission. Also if the two photocells have unequal spectral responses a false balance point may be found.

The second type of instrument employs only one photocell, the current produced on illumination being measured directly by a sensitive galvanometer. The principle of this instrument assumes that the galvanometer deflection is proportional to the intensity of the light incident on the photocell. Several workers have demonstrated that this is readily achieved if (*a*) the level of illumination is low, and (*b*) the galvanometer resistance is low compared with the photocell resistance. The chief advantages of this type are simplicity of design and rapidity of operation. It is notable that what are probably the most accurate measurements of colour intensity ever made—those of Hogness and his co-workers on haem pigments—were made with a single-cell instrument. The chief disadvantage is that illumination of constant intensity is necessary during the measurement. In the past this has involved the use of low-wattage lamps and storage batteries. Recent developments in the design of constant voltage transformers have, however, made it possible to use A.C. mains as the source of power with a constancy of illumination superior to that obtained with storage batteries. The chief criticism of this class of instrument is thus no longer valid. The extremely high sensitivity readily available with the single-cell instrument makes it possible to use very selective light filters, and thus to isolate a narrow spectral band, a property very desirable for certain colorimetric estimations.

The design of either class of instrument involves close attention to both optical and electrical principles, and the instrument described below is presented not as anything fundamentally new, but as an example of the application of these principles to the design of a practical instrument. It has been developed from four years' experience of the essentials necessary in a photoelectric colorimeter for routine biochemistry, and can be readily handled by a relatively unskilled operator.

The principle of the instrument is illustrated in the figure. A is a 6-volt 6-watt tungsten filament lamp (automobile side-lamp bulb), which can be run either from a large-capacity storage battery or from A.C. mains with a constant voltage transformer. The lamp can be centred accurately by the grub screws shown. The electrical leads are soldered directly to the lamp, as the use of a lampholder is unsatisfactory. B is the optical condenser, which can be adjusted to give a parallel light beam by a radial lever (not shown). C is the first filter holder with provisions for two light filters. This makes it possible to interpose a filter between light source and solution if necessary. A 2-mm. thick Chance calorex infra-red filter is mounted permanently in C. D is the cell carriage. This is provided with a 1-cm. thick optical stop which travels with it. The provision of a thick stop immediately adjacent to the optical cell is an important feature of the design, as by this means reflection from the liquid meniscus and from the sides of the cell is obviated. The carriage is mounted on an arm pivoted at E and extended to form a handle at F. The carriage is traversed by means of F. When F is in the middle of its travel the light beam is interrupted and the filters can be changed without risk of excessive illumination of the photocell.



The carriage will accommodate optical cells of 5, 10, or 20 mm. solution thickness. G is the second filter holder with provision for two filters. Ilford spectrum filters, which cover the visible region in nine steps, are used. H is an iris diaphragm operated by a worm drive to give fine adjustment. I is the photocell (2 cm. E.E.L. type) mounted in an eccentric housing for adjustment. It is connected directly to the galvanometer. This is a Tinsley enclosed scale type S.S. 6/45 sensitivity 800 mm. per microamp., coil resistance 150 ohms. The ratio of photocell resistance (approximately 20,000 ohms) to galvanometer resistance is adequate to ensure linearity over a wide range of illumination.

If A.C. mains are used as source of current, the lamp is operated through a type M.T. 183 230–6 v. Advance constant voltage transformer. It is advantageous to connect one primary terminal to one secondary terminal to minimize transformer drift. Where the highest degree of stability is required the M.T. 183 transformer can be fed from a type M.T. 161 230–230 v. Advance constant voltage transformer, the secondary of the M.T. 161 being connected directly to the primary of the M.T. 183. In this case the primary and secondary of the M.T. are not connected. With this combination a change of 8% in mains voltage produces a change of 0.2% in galvanometer deflection.

The instrument has also been used as a photoelectric spectrophotometer by removing the lamp housing and focusing on the exit slit of a monochromator. The latest instrument has provision for attachment to an optical bench for accurate alignment. The monochromator was illuminated by a 12-v. 60-watt tungsten filament lamp fed from A.C. mains through a type M.T. 140 230–230 v. Advance constant voltage transformer and an ordinary 230–12 v. transformer.

It is hoped in the near future to develop a modified form of the instrument for fluorescence measurements. A simplified form of the instrument is available for routine use. This differs from the description above in having only one filter holder and a permanently focused optical system.

Operation of the instrument is extremely simple. The lamp is switched on some 10 minutes before use to allow constant light intensity to be attained. With F in the central position, the galvanometer zero is set and the correct filter inserted. The control solution is now brought into the light path and the galvanometer deflection is adjusted to full scale (200 mm.) by the iris diaphragm H. The carriage is traversed to bring the solution to be measured into the light path. The galvanometer deflection × 0.5 then gives directly the percentage light transmission of the solution. The extinction can then be calculated from the relation:

$$E = 2 - \log_{10} T,$$

where E is the extinction and T is the percentage transmission, or may be read from a table. A calibration curve is made for a given estimation by determining the extinctions for solutions of known concentration. The galvanometer scale is read to the nearest half division, which is equivalent to an accuracy of ± 0.25% in transmission or 0.6% in extinction in the usual operating range. The linearity of measurements on solutions of salts like $KMnO_4$ and K_2CrO_4, which are known to obey the Beer–Lambert law, is within this error of measurement. One instrument has been in use in this laboratory almost daily for four years, and has shown no change in linearity of response during this time.

The instrument may be obtained from L. H. Miller, 57, Dulverton Road, New Eltham, S.E.9.

REFERENCE

Müller, R. (1939). *Ind. eng. Chem.* (Anal. ed.), **11**, 1.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY JULY 15 1944

AIR DISINFECTION

Air-borne infection is perhaps the largest unconquered field in preventive medicine. It is well recognized as being responsible for the spread of all the infectious fevers and almost all infections of the air passages, from the common cold and influenza to diphtheria and tuberculosis, but beyond improvements in general architecture and in ventilating systems no serious attempt has been made to diminish the spread of infection by this route. That the air of inhabited places does actually contain pathogenic bacteria has been repeatedly proved, and it should obviously not be beyond the wit of man to find some means of destroying or removing them. Regular readers of this *Journal* will be aware that only since the war began has any serious attempt been made to attack this problem in this country. The motive, so far as we were concerned, was the danger of widespread epidemics when large numbers of people were crowded in air-raid shelters, and the valuable work done by Andrewes and his colleagues at the National Institute for Medical Research, designed to discover an efficient method of air disinfection, was undertaken mainly with the object of averting this danger. That no such grave epidemic ever occurred, although large-scale measures to prevent it were never actually brought into operation, is a mystery as well as a fact for which we must all be thankful. Similar but more leisurely studies have been in progress in the U.S.A., not so much with any immediate wartime object but with the larger end in view that the atmosphere of inhabited places generally might be brought to a higher standard of bacteriological purity.

We print in our opening pages a review by Prof. Stuart Mudd of the progress which has been made in this direction. Those who are interested in the subject will find his survey of this wide field a valuable source of information, and any who are not familiar with what has been going on may perhaps be astonished at the scope of this work and the far-reaching effects it is calculated to achieve if the lessons learnt in laboratory experiment prove capable of application on a general scale. The magnitude of the problem is evident from the figures given of industrial disability due to infections of the air passages. The number of hours lost from this cause has increased in the U.S.A. since the war began, and is larger by far than those due to any other condition. There are two principal methods by which air may be disinfected. One is the employment of ultra-violet light, and in the practical application of this method workers in the U.S.A. have been the pioneers. It can be applied in several different ways, the light being either employed diffusely by burners reflecting upwards and disinfecting only the upper layers of air in a room, or directed in the form of curtains protecting a cubicle or other unit from contamination from without. A third special example is the irradiation of the operation site employed by Hart for safeguarding wounds from atmospheric contamination. The diffuse method of ultra-violet irradiation has been shown, in many practical experiments in the U.S.A., to be capable of restricting the spread even of highly infectious diseases in schools and hospitals, and this method evidently has a valuable future.

The other available methods are chemical, and the earlier work on these originated mainly in this country. The work of Andrewes and his colleagues, of Twort and of Masterman, showed that various disinfectants were unexpectedly active in disinfecting air in the sense that the concentration required was smaller by far than that required, for instance, in water. One possible explanation of this was the aerosol theory of Trillat, who postulated that minute particles of fluid in the atmosphere attracted bacteria to themselves and so brought a high concentration of the disinfectant to bear upon them. This hypothesis led to attempts to produce mists or aerosols composed of fluid particles which persisted for as long as possible without evaporation. It was this consideration which led to the use of glycols as solvents for the disinfectants. Masterman, on the other hand, believed that when sodium hypochlorite was sprayed into the atmosphere its effect was exerted not by fluid particles but by hypochlorous acid gas. Whatever the mechanism of the effect, either sodium hypochlorite or a solution of hexyl resorcinol in propylene glycol was certainly capable of disinfecting air when sprayed to produce a concentration which was harmless to people breathing it. The main advance on these studies achieved in the U.S.A. is the demonstration that propylene glycol itself, used by English workers merely as a solvent, is highly bactericidal. This astonishing discovery has entirely altered the outlook for this method of treating air, since the use of glycols for this purpose is simplicity itself, and the vapour produced is entirely imperceptible and, so far as is known, quite harmless to human beings. Here again practical demonstration of the efficacy of the method in checking the spread of air-borne infection has been obtained in studies made in the U.S.A.

There are therefore, undoubtedly, methods by which the atmosphere of inhabited places can be disinfected so that the transmission of infection from person to person can be checked. It is one thing to prove the efficacy of such methods on an experimental scale and quite another to apply them wholesale. Indeed, it is difficult at present to predict how far such procedures will come into practical use. They have an obvious field in hospitals where communicable infection is known to exist, and their employment in such conditions may be regarded as a certainty. This in itself will be a great achievement, and has many special applications which those who have been concerned with ward epidemics and cross-infection of various kinds will readily be able to picture. To turn these discoveries to practical account in crowded buildings, in public vehicles, and in all those places where respiratory diseases may be acquired from one's neighbour is quite another problem. How far it will be possible or advisable to go in this direction will doubtless depend on local conditions, on season, and on the prevalence or otherwise

of epidemic infection. If there is any serious prospect of checking the spread of the common cold or influenza at all completely it may be asked whether the effect of this would be entirely desirable. One distinguished author[1] has recently suggested that occasional attacks of these infections are the price we pay for some degree of immunity to more serious diseases of the air passages, and if there is any basis for this idea it may perhaps be inadvisable to go beyond a certain point in protecting the community against air-borne infection.

HIATUS HERNIA AND ANAEMIA

Three types of oesophageal hernia have been described: the congenitally short oesophagus, in which part of the stomach is permanently within the thorax; the para-oesophageal hernia, in which the lower end of the oesophagus remains below the diaphragm and a part of the stomach herniates past it into the thorax; and the gastro-oesophageal hernia, in which both oesophagus and stomach herniate through the diaphragm into the thorax. The para-oesophageal hernia is the most frequent, and by popular usage it has come to be known as hiatus hernia. Similar symptoms may occur in all three types of hernia; these symptoms may be of great variety, and they do not occur in all cases. A broadly dilated oesophageal hiatus, with a freely movable and distensible herniating portion of stomach and a normal pattern of gastric rugae, is far less likely to give rise to symptoms than a hernia which is persistent, fixed, and not distensible, and in which the pattern of the gastric rugae is abnormally prominent. The most typical symptom of hiatus hernia is a substernal pain like angina, which is worse after meals, aggravated by the horizontal position, and often accentuated by emotional stress. Heartburn and regurgitation occur, particularly in the supine position, and the patient may have to stand after meals and read or write with the book on top of the piano. Vomiting may occur without much nausea; haematemesis is not infrequent, but dysphagia is unusual. A symptom which Ohler and Ritvo[2] regard as pathognomonic of hiatus hernia is a feeling of fullness, pain, or distress in the epigastrium or under the tip of the xiphoid, coming on with the ingestion of the first few mouthfuls of food. It may be so severe as to necessitate the interruption of the meal. However, on leaving the table and walking about for a short time the patient experiences a sudden disappearance of the complaints, often with a feeling of something dropping or giving way in the region of the lower sternum. He is then able to return and finish the meal in entire comfort. The explanation is doubtless that the food first ingested fills the herniated portion of the stomach, with distortion, compression, and complete or partial obstruction of the oesophagus; when he gets up and moves about the herniated portion of the stomach empties or reduces itself, and the symptoms disappear.

Hiatus hernia commonly occurs in well-nourished individuals past middle age. Large abdominal tumours favour herniation, and it is more common in females because of the effects of pregnancy, chronic constipation, and post-menopausal obesity. The symptoms closely mimic those of disease of the gall-bladder or the coronary arteries, and the combination of severe substernal pain and haematemesis may suggest cancer of the stomach. The lesion is easily missed if the patient is *x*-rayed in the erect position only, and it is essential to make the examination during the ingestion of barium in the supine and prone positions as well as the erect. Forcible pressure on the abdomen may reveal a hernia which would be otherwise missed. The shadow of the herniated portion of stomach is picturesquely described as having the shape of an inverted molar tooth; the lower end of the oesophagus is situated asymmetrically in relation to this shadow, entering at the right anterior margin of the herniated fundus.[3]

Recent writers have commented on the comparative frequency of hiatus hernia and on the high incidence of haemorrhage and anaemia. Sahler and Hampton[4] found that in a series of 220 cases of hiatus hernia 32 had either moderately severe anaemia or a history of bleeding from the gastro-intestinal tract. They attributed the bleeding to constriction at the hernial ring and, as a result, venous congestion, gastritis, and ulceration in the herniated fundus. The gastritis has been confirmed by examination with the gastroscope. Murphy[5] found that, of 7 patients with hiatus hernia or short oesophagus, 66% had some degree of anaemia, and in 27% the anaemia was severe. Erosive gastritis and severe anaemia, which are similarly due to lack of living space, have been observed by Reimann[6] in severe kyphoscoliosis and attributed by him to compression of the stomach and duodenum and the great vessels in the mesentery. The anaemia of hiatus hernia is usually of the hypochromic type, and it responds well to iron. A curious symptom mentioned by Dyke and Dyas[7] is pain in the hands. Another patient described this dramatically as like a flame in the hands; there are also tingling and loss of strength in the hands and inability to do fine work. The symptoms are worse with changes of temperature, such as going to bed or exposure to cold. There are no visible changes in the hands, and there is no involvement of the nervous system. Similar symptoms occasionally occur in idiopathic hypochromic anaemia, and they are not pathognomonic of hiatus hernia. Treatment of hiatus hernia is by a diet low in roughage, with avoidance of solid food at the start. Five or six small meals are better than three large ones, and the patient should lose weight if obese. The patient ought to avoid lifting or straining and should rest before meals rather than after; it is helpful to raise the head of the bed. Iron should be given for the anaemia. Operation must be considered if the symptoms are severe and do not yield to treatment, if there is obstruction at the hiatus, or if there is recurrent severe bleeding. In conclusion, hiatus hernia should always be considered in the diagnosis of obscure substernal pain or unexplained hypochromic anaemia, as it is much more likely to be found if it is looked for.

[1] *British Medical Journal*, 1944, **1**, 296.
[2] *New Engl. J. Med.*, 1943, **229**, 191.
[3] *Amer. J. Roentgen.*, 1943, **50**, 33.
[4] Ibid., 1943, **49**, 433.
[5] *Arch. intern. Med.*, 1943, **72**, 58.
[6] *Gastroenterologia*, Basle, 1941–2, **68**, 197.
[7] *Lancet*, 1940, **1**, 119.

NUTRITION AND THE WAR

Dr. V. P. Sydenstricker,[1] the well-known American nutritionist who was in this country last year, concluded that after four years of war the food situation here was on the whole fairly good. But he thought it a pity that the pregnant woman does not get her unborn child's ration book as soon as she is pregnant instead of ten months later. The effects of slight malnutrition in pregnancy are not detectable clinically and therefore attract little notice; it is only rarely that gross deficiency disease develops. Nevertheless improvement of the nutritional status of the pregnant woman can lower maternal morbidity and cause a reduction in abortion, premature delivery, and stillbirth. It appears that the pregnant woman tends not to get enough vitamin C, animal protein, and fats in her diet. The free cod-liver oil and orange juice now available to her may remedy this in part. The nutritional status of young children is fairly good, for they are provided with vitamin C and cod-liver oil. Growing school-children, however, do not get enough first-class protein—youngsters of 6 get only half a pint of milk daily—and probably not enough vitamin C unless they consume large amounts of "greens." The position of the industrial worker appears to be adequate. Sydenstricker discusses the effect of adding vitamin supplements to the diet of workers to increase their stamina or to enable them to endure excessive and prolonged effort. Controlled observations by Keys and Henschel[2] and by Foltz and his colleagues[3] in America showed that, provided a person is on an adequate diet, supplements of vitamins have no effect on resistance to fatigue, endurance, output of work, or muscular power. Frankau,[4] however, observed that the addition of nicotinamide to the diet increased the efficiency of fit young men in carrying out a fairly severe test involving physical effort and co-ordination. But fatigue in industrial workers would seem best to be combated by giving extra calories (e.g., in the form of sweetened drinks) and salts to replace those lost in sweat. Sydenstricker rightly deprecates indiscriminate dosing with vitamin pills in place of natural foodstuffs. "It is axiomatic," he says, "that vitamin concentrates and synthetic vitamins should not be used when natural foodstuffs are available in adequate amounts." Jenkins and Yudkin[5] have shown that there is little to be gained by giving vitamin supplements to adequately fed school-children.

Who can predict the post-war food situation? It will no doubt vary in different countries and even in different localities in the same country. The duration of the war will be an important factor. Bread is one of the staple foodstuffs in Europe now, and the fact that it is made from very high extraction flour, other cereals, legumes, and potatoes suggests that there is not likely to be a shortage of the vitamin B complex. The lack of milk, butter, cheese, and meat, however, may be expected to cause a deficiency of calcium, vitamins A and D, riboflavin, and first-class protein. All European countries have done what they can to see that children and expectant mothers come first on the list for protective foods and supplements of vitamins A, D, and C; but many thousands must be in a pitiful plight, and no doubt, when the moment of liberation comes UNRRA won't be slow in coming to their aid. The requirement for synthetic vitamins in post-war Europe cannot be foreseen. The most urgent need will be for calories and protein. G. H. Bourne[6] advocates the preparation of adequate stores of wheat, dried milk, dehydrated butter, dried meat and fish, whale oil, soya beans, and supplements of vitamins A, D, and C. Deficiency diseases should be treated in the acute stage with special vitamin concentrates. In this connexion Sydenstricker warns against the use of large doses of vitamin B_1, riboflavin, and nicotinic acid in severely depleted patients: it seems certain that large doses of one of these three vitamins may precipitate a major deficiency of one of the others. In most cases dried brewers' yeast and liver extract appear to be preferable to mixtures of the synthetic B vitamins.

1 *Nutr. Abstr. Rev.*, 1943, **12**, 339.
2 *J. Nutrit.*, 1942, **23**, 259.
3 *J. Lab. clin. Med.*, 1942, **27**, 1396.
4 *British Medical Journal*, 1943, **2**, 603.
5 Ibid., p. 265.
6 *Nature*, 1942, **149**, 182.

TOXIC POLYNEURITIS AFTER SEDORMID

Sedormid (allyl-isopropyl-acetyl carbamide) is a mild sedative and hypnotic, its potency lying between the bromides and the barbiturates. It has been used extensively on the continent of Europe and in general practice in England, though in hospital practice it has never found much favour. It is not very toxic and is rapidly excreted. Cases of thrombocytopenic purpura resulting from its use have frequently been recorded: in England by Loewy,[1] Torrens,[2] Joekes,[3] and Miller and Rosenheim[4]; in America by Hoffmann,[5] Moody,[6] and Huber[7]; and in Germany by Dennig[8] and Lieberherr,[9] among others. The thrombocytopenic purpura is quite typical of that condition, being characterized by haemorrhages from the mucous membrane, into the skin and other organs, a reduced platelet count, a prolonged bleeding time, and lowered capillary resistance. Moeschlin[10] attempted to investigate the cause of the condition by sternal-puncture studies and by controlling the rise and fall of platelets during experimental tolerance tests with sedormid in ten cases. During these tests there were no changes in the megakaryocytes, and the "myelogram" remained practically unchanged, except for a slight increase in the erythroblasts as a result of haemorrhages. The tolerance tests showed that in sensitive individuals the platelets would disappear from the blood within half an hour. They must therefore be destroyed in the circulating blood. Yet blood from a sensitive patient at the height of the thrombocytopenia, when given as a blood transfusion, had no effect on the platelets of the recipients. Two or three days after the acute thrombocytopenia a progressive increase in platelets became evident, until after five days normal levels were reached; at first the platelets were immature, which may have been due to an inhibition of maturation of the megakaryocytes. Moeschlin suggested that the cause of these phenomena lay in those nerve centres of the brain that regulate the entire platelet apparatus, but there does not appear to be any concrete evidence to support such an ingenious theory.

Wespi[11] quotes Fortanier as describing medullary symptoms, including dysphagia, in a woman aged 52 after taking a course of 51 tablets of sedormid; but she also had purpura, so these symptoms may have been brought about by a cerebral haemorrhage. He also quotes the description by Spanish authors of paresis of the arms and legs in a young girl who took 6 tablets of sedormid; the symptoms were thought to be due to a toxic polyneuritis. Wespi then gives an account of a woman of 21 who attempted suicide by taking 36 tablets

1 *Lancet*, 1934, **1**, 845.
2 Ibid., 1938, **1**, 749.
3 Ibid., 1938, **2**, 305.
4 Ibid., 1938, **2**, 402.
5 *J. Amer. med. Ass.*, 1938, **110**, 725.
6 Ibid., 1938, **110**, 726.
7 Ibid., 1939, **113**, 674.
8 *Münch. med. Wschr.*, 1933, **80**, 562.
9 *Med. Klin.*, 1937, **33**, 475.
10 *Schweiz. med. Wschr.*, 1942, **72**, 119.
11 Ibid., 1943, **73**, 1257.

(9 grammes) of sedormid. She did not develop purpura, and her platelet count remained normal throughout her illness; but when she recovered consciousness she was found to have paresis of the right sixth nerve, the right brachial plexus, and the left ulnar nerve. These symptoms cleared completely in the course of a few months. Since both sides were involved, it is unlikely that the symptoms arose from pressure during the period of coma; and the normal platelet count excludes the possibility of multiple haemorrhages into the central nervous system. It seems, therefore, that a toxic polyneuritis must be numbered among the symptoms that can arise from overdosage with sedormid, though there is no account of its ever having arisen with normal therapeutic doses.

VENEREAL DISEASE IN SWEDEN

The spread of venereal diseases has again presented a grave social and medical problem in time of war, and the review[1] of the experience of Sweden in this respect recently made by Dr. Rolf Hallgren is therefore of more than special interest and importance. Venereal disease was rife in Sweden in the seventeenth and eighteenth centuries, and strong measures were taken to combat it during the latter period, but without much effect. In 1812 a Royal Decree was promulgated, replacing local rules. Later, promiscuous women were registered and medically examined at frequent intervals; they also had to conform to certain police regulations. In 1903 a private motion to set up an inquiry was carried in the Diet; this inquiry took seven years, and it was not until 1917 that the proposed Bill took shape. The Venereal Disease (Prevention) Act came into force in 1918; minor amendments have been made since, and at the present time improvements are under consideration. The principles of the existing law are that: (1) Everyone is treated alike: there is no discrimination against prostitutes. (2) Notification is compulsory by the doctor making the diagnosis but is anonymous. (3) Examination and treatment are free during the period of infectiousness (apparently this may be as long as three years in the case of syphilis). (4) The police may be called in to enforce the law. (5) It is a criminal offence knowingly to transmit venereal disease. The Act of 1918 in 19 sections lays down the procedure. There are three official forms of venereal disease—syphilis, gonorrhoea, and soft chancre; lymphogranuloma inguinale was added later. The M.O.H. operates the Act, and treatment is compulsory but free, including free hospital treatment and free certificates. Treatment is carried out by specially appointed medical officers, who are paid according to a fixed scale; there are no *ad hoc* venereal disease clinics.

The procedure is somewhat as follows: The doctor making the diagnosis must explain to the patient the nature of his disease (the parents if the patient is under 15) and give him a pamphlet, which lays down what he must do, including the avoidance of marriage; the patient signs a receipt. If the patient defaults the doctor must try to persuade him to resume treatment; if he does not comply, the doctor reports him to the M.O.H. The doctor notifies venereal disease by sex, age, and domicile, but not by name; he must also try to obtain particulars of the source of infection, and he notifies this by name and address to the M.O.H. The latter is enjoined to employ great discretion in dealing with the contact: letters should be in plain envelopes and not marked "O.H.M.S." He orders the contact to be examined and to furnish a certificate that this has been done; the contact must then submit to treatment, if necessary in hospital. The M.O.H. orders all defaulters to resume treatment, and the public health authority may call in the police to enforce this. A Parish Registrar, on information received, may forbid the banns if any patient suffering from venereal disease contemplates marriage. There is an appeal against the decision of the public health authorities, but pending this orders must be obeyed. The King decides on measures to educate and inform the public, and to make known the obligations of those suffering from venereal disease. Officials or doctors neglecting their duties are liable to fines. Under the penal code anyone who knowingly exposes another to infection is subject to a fine, and, if venereal disease is actually transmitted, to hard labour. Unqualified persons treating venereal disease for gain are subject to fine or imprisonment. It will be seen that our Regulation 33B is a mild version of the Swedish law: mild in that neither notification nor treatment is compulsory, unless a person found to be suffering from venereal disease has infected two or more persons.

Gonorrhoea reached its peak in Sweden in 1919 with 20,651 cases, dropped to 10,006 in 1940, but rose to 19,841 in 1943. In 1942, of 13,747 cases 4,551, or nearly one-third, occurred in Stockholm alone; during the present war the proportion of women to men has been much higher than during the last war; this is thought to be due to the greater number of young females who are promiscuous, and to an increased indulgence in alcohol, both of which are paralleled in Great Britain. Acquired syphilis fell from 6,303 cases in 1919 to 273 in 1941, but rose again to 936 in 1943. Soft chancre, curiously enough, has shown a fairly steady decline throughout the whole period 1918 to 1942, till its incidence is now almost negligible. During the five years 1937–41 in Stockholm 23 to 27% of contacts were reported; in the three other large towns, 17 to 28%; and in the rest of the country 29 to 36%: a substantial proportion of these could not be traced. Naturally the proportion was higher in Stockholm than in the rest of the country.

The Royal Medical Board, which criticized the suggestions for legislation resulting in the Act of 1918, has now made recommendations stressing the need for increasing treatment facilities, appointment of social workers to clinics, provision of prophylactic facilities for males, and an intensive educational campaign, including teaching of sex physiology to the young. It is to be remarked how closely these conform to those made by the Medical Advisory Committee in Scotland, and it is of interest to ponder whether Swedish methods would work as well in Great Britain as they do in Sweden, and whether British public opinion is yet ripe for them. If compulsory notification and compulsory treatment can aid in checking the spread of venereal disease then there is everything to be said for introducing these measures. The experience of Sweden in this war shows, however, that such legislation does not prevent the rising incidence of venereal disease when circumstances favour this.

1 *Publ. Hlth.*, 1941, **57**, 96.

PENICILLIN IN VIRUS DISEASES

It has usually been assumed that penicillin has no effect on filterable viruses. This is to be expected by analogy with the entire lack of effect on them of other chemotherapeutic agents, and by what little we know or assume about the nature of the action of penicillin. Obscure as this question is, it is generally believed that penicillin interferes in some way with the metabolism of the bacterial cell, and since the metabolic activities of viruses are of the simplest nature they are not likely to be susceptible to this form of attack. Such clinical evidence as is so far available includes no instance of any apparent tive effect in a virus disease in man. It is therefore

surprising to read in a recent paper by F. R. Heilman and W. E. Herrell[1] that penicillin is effective against experimental ornithosis in mice. The strain of virus used was derived from a pigeon, and initial attempts to treat mice infected by the intracerebral route were without effect. This failure was attributed to the incapacity of penicillin to traverse the blood–brain barrier, and a further series of animals were inoculated intraperitoneally. Treatment was begun at once, consisting of repeated subcutaneous injections of penicillin solution. The mortality in 40 untreated controls was 88% and that in 40 treated only 5%. The controls were found to have characteristic lesions in the liver and spleen which were absent in the treated animals, though virus could nevertheless be detected in these organs by inoculating further animals with suspensions of them. This unexpected result seems difficult to explain except as a direct effect of the drug on the virus. There seems to be no question of its having merely controlled a secondary bacterial infection, as was the case when sulphanilamide was alleged to be curative of distemper and trachoma. The authors have not yet carried out experiments with psittacosis virus, which is much more virulent to mice. This is an obvious extension of the work which must clearly be pursued. If there is anything in the idea that penicillin is effective against viruses, there are many other directions in which this study can be extended in the experimental field before any attempt is made to treat virus infections in man. So far as the direct translation of this work into the clinical field is concerned, there have already been a few scattered observations that penicillin is without effect on what are apparently virus pneumonias.

DIFFERENTIATION OF CULEX MOLESTUS

We have several times recently had occasion to refer to *Culex molestus*, a British mosquito of more than usual interest. This is the bloodthirsty mosquito that has been found breeding in underground levels of the London tube railways, etc., and which seems to have a preference for a subterranean life. Again it is the mosquito which has long given to its near relative, the common British mosquito *C. pipiens*, an undeserved bad reputation, since *C. pipiens* rarely if ever bites man, and it is only the existence of *C. molestus*, which does bite man freely and has been mistaken for *C. pipiens*, that gave rise to the belief that *C. pipiens* did so. Apart from this, *C. molestus* has for some time been of special interest to the scientific entomologist because it was supposed to be a biological race of *C. pipiens* which had developed the very curious and quite unique habit among mosquitoes of being able to lay eggs without a previous blood meal, on which account it was usually referred to as the autogenous form of *C. pipiens*. It may not be irrelevant to note that a very similar case of a mosquito being supposed on account of peculiar habits to be a biological race applies to the so-called races of *Anopheles maculipennis*, now generally conceded to be closely related but distinct species and therefore entitled to any distinctive habits such species may possess. As with these nearly related species of anopheles, so with *C. molestus* the difficulty has been to find suitable structural characters on which differentiation, in this case from *C. pipiens*, can be made in practice. It is therefore very gratifying and helpful that the points of distinction between these two species have been placed on an entirely satisfactory and practical basis in a recent publication of the British Mosquito Control Institute, Hayling Island, Hants, under the authorship of its director, Mr. John F. Marshall, C.B.E. Here in a form that even the non-expert can readily follow is given a most complete and up-to-date account of this interesting British mosquito, its life-history and habits, the localities from which and the conditions under which it has been recorded, how it may best be captured and identified, and the methods that can be used in its control. Perhaps for those working on British mosquitoes the most welcome feature of the pamphlet is the very clear statement of the points in which this species differs in structural characters from *C. pipiens*, the surprising thing being that the two species could ever have been confused. These points of differentiation apply not only to the adult—notably the abdominal ornamentation, the absence of patches of pale scales at the ends of the femora and tibiae, especially of the hind legs, and the fact that the last segment of the male palpi lies wholly beyond the tip of the proboscis—but to differences in the larva and notably in the egg raft. It is entirely due to Mr. Marshall's careful work on British mosquitoes that this long-unsuspected species has now come to be recognized, and his account of its morphology and biology is a notable addition to mosquito literature. He will send a free copy to any responsible inquirer who writes to "Wayside," 47, London Road, Cheltenham.

[1] *Proc. Mayo Clin.*, 1944, **19**, 57.

CONTROL OF TRAFFIC IN NARCOTICS

Sir Thomas Russell Pasha, whose vigilance in the Near East effected so salutary a change in the contraband trade in Egypt, has again issued warnings against illicit production of hashish (cannabis) in Syria and the Lebanon resulting in illegal traffic in the drug among the prosperous middle and lower classes in Egypt. The Permanent Central Opium Board, which now meets in London under the presidency of Sir Atul Chatterjee, the Indian delegate, continues to receive reports on the production, manufacture, export, import, and stocks of the scheduled dangerous drugs included in the several international conventions. Some of the Governments party to these conventions, however, are in default in making the statistical returns which are obligatory on the contracting parties. Fifty-two of the 66 metropolitan countries complied with their obligations in respect of the year 1942, and 51 of the 99 colonies and dependencies likewise made returns. Among non-belligerent countries the most serious unexplained gap is that of Spain, which is in default as regards all the required annual statistics. This omission is the more regrettable as there is reason to believe that in the last two years imports of opium and crude cocaine to Spain have reached an abnormally high level. The countries of Central and South America continue to improve their records. Peru, however, has since 1935 furnished either no returns or inadequate ones, though the country produces and exports crude cocaine in large quantities. In 1942 such exports amounted to 2,825 kilogrammes, some of which went to the Argentine, which is not yet a party to two of the conventions. The Board issues a warning of the need for "complete control over the manufacture of, trade in, and distribution of narcotic drugs in the countries, whether enemy or enemy-occupied, as they come under the military and civil control of the United Nations. Unless this is done there is grave danger of a recrudescence of the illicit traffic in drugs and of the spread of addiction, such as was encountered after the last war."

We regret to announce the deaths of two distinguished members of the consulting staff of the London Hospital: Sir William Lister, Consulting Surgeon Oculist to the King, who was also for many years surgeon to Moorfields Eye Hospital; and Dr. Wilfred Hadley, who was also consulting physician to the Victoria Park Chest Hospital.

SELF-MEDICATION AND PATENT MEDICINES

BY

J. N. P. DAVIES, M.B., Ch.B.

(From the Physiology Department of the University of Bristol)

The assembly of volunteers undergoing the Medical Research Council haemoglobin survey afforded an opportunity of inquiring into their consumption of medicines not taken under medical direction or advice. Apart from a note by Williams and Hill (1930) on the use of patent medicines by tuberculous patients, the medical literature contains no record of investigation into the details of the individual consumption of patent medicines. So the volunteers were handed a list of medicines, devised in conjunction with Dr. H. Heller, and were asked to read it right through and to tell the observers what they used and the details of its consumption. Those taking a remedy under medical advice were ignored. The descriptive terms of the questionary were varied so as to bring to the mind of the person questioned the wide range of medicaments and their different forms that might be taken. Aspirin was given a place of its own, as it is employed for so many different purposes. The only real difficulty in assigning a medicine to its appropriate category was in the case of milk of magnesia, which seems to be used more for its laxative than for its stomachic properties. It is included under the vague heading of "Bowel Medicine."

The results are set out in Tables I and II. 277 persons were questioned, comprising factory workers (mostly engaged in light engineering), office, laboratory, and laundry workers, nurses, business men, and A.R.P. full-time staff. The wording of the questions is shown in the first column of Table I. All above the age of 15 years were put through the test. The questions were always answered cheerfully and courteously and without embarrassment, and at no time was it felt that subjects were concealing their use of the medicines suggested to them. By an oversight the use of "cold-preventives"—e.g., calcium—was not inquired into. No questions were asked about substances taken for sexual disabilities, venereal diseases, etc., real or imagined, as it was felt that this would put too great a strain on the subjects' honesty. But from some of the statements made there is good reason to think that there is still a considerable trade in medicines for venereal disease.

Self-medication in Relation to Age and Sex

Table I shows that a slightly larger proportion of females (78%) took medicines than males (72%), but the difference is statistically insignificant. Out of 277 questioned only 11 were taking gastric sedatives (even including those taking milk of magnesia). This is striking, as it is generally believed that the consumption of such substances by the general population is very high; several factory medical officers suggested that about 10% of the male operatives regularly used them. The very low percentage revealed by the survey may be a truer index of the state of affairs, or it may be evidence of selection. There is the possibility that sufferers from chronic gastric disorders are not of the temperament that volunteers to lose blood even in small amounts. Hence they are missing from surveys such as this—a point of rather wide implication. With the exception of those suffering from skin troubles and a very few in obvious ill-health, the majority professed themselves as thoroughly healthy. Thus this is a survey of the medicines taken by healthy people.

The total of 277 persons was rather too small to submit all the results to statistical analysis, as when broken down into small groups there were too many void classes; so it was decided to set out the results directly in the hope that, though too small now, they might be built into a larger series later. However, the relation between self-medication and age for each sex is shown in Table II. For all ages combined the proportion of males who took more than one medicine was slightly but insignificantly larger than for females, the percentages being 25 and 21. For both males and females the proportion taking medicines was independent of age. This appears most important, as it would be expected that the greatest consumption of medicines would occur during the ages when physiological stresses are at their maximum. For instance, at the menopause it might be expected that the proportion of women taking medicines would be much higher than in the 25–35 age group. This finding clearly suggests that the consumption at all ages is dependent not on physiological or pathological demand but on advertisement and suggestion: that if there were no advertisements to induce the public to believe that they need such medicines there would be little demand. While this is true over the whole range of medicines, it seems to be true also of each type of medicament, although no attempt has been made to express this statistically. Self-medication may in rare cases be a product of serious defects in our social life (*Our Towns*, 1943), but it would seem that there is no real need for any patent medicines of any sort, and that the present demand is almost entirely the result of advertisement.

TABLE II.—*Self-medication by Age and Sex*

Ages	No. of Observations		No. not taking any Medicine		No. taking One Medicine		No. taking More than One Medicine	
	M.	F.	M.	F.	M.	F.	M.	F.
15–	27	67	6	16	10	39	11	12
25–	41	26	10	5	20	18	11	3
35–	43	18	15	2	20	9	8	7
45+	38	17	11	5	20	7	7	5

A comparison of the age distribution of those taking medicine and those not taking medicine gave:

	χ^2	P
Males	1·76	0·63
Females	2·02	0·57

Aspirin

Aspirin is used for many purposes—for headaches, for colds and chills, for any rheumatic pains, even as a sleeping draught. It is a remedy more favoured by women than men: 44.5%

TABLE I.—*Self-medication Related to Occupation*

	Total	Male	Female	Factory		Office		Laundry		Laboratory		A.R.P.		Nurses	Miscellaneous Men
				M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
Persons questioned	277	149	128	72	33	9	14	5	46	17	2	25	3	30	21
Not taking medicines	70	42	28	20	4	3	4	3	11	1	—	6	—	9	9
Taking medicines	207	107	100	52	29	6	10	2	35	16	2	19	3	21	12
Aspirin	89	32	57	12	14	—	3	2	27	10	1	3	1	11	5
Headache powders	9	4	5	2	1	—	1	—	2	2	1	—	—	—	—
Sedatives	1	1	—	—	—	1	—	—	—	—	—	—	—	—	—
Nerve tonics	4	3	1	1	1	—	—	—	—	—	—	—	—	—	2
Iron	8	3	5	1	4	—	—	—	—	2	—	—	—	1	—
Vitamins	8	7	1	1	—	—	—	—	1	6	—	—	—	—	—
Yeast	2	1	1	—	—	—	—	—	—	1	—	—	—	1	—
Total salines	67	40	27	26	8	5	4	—	4	9	1	—	3	7	—
Saline A	49	31	18	20	8	4	3	—	3	7	—	—	1	3	—
Vegetable laxative	38	23	15	14	4	1	1	—	5	3	—	—	—	5	5
Vegetable laxative B	14	8	6	7	2	—	—	—	4	—	—	—	—	—	1
Oily laxative	2	—	2	—	1	—	1	—	—	—	—	—	—	—	—
Stomach medicine	7	5	2	3	—	—	—	—	2	—	—	1	—	—	1
Liver mixture	2	1	1	—	1	—	—	—	—	—	—	1	—	—	—
Kidney mixture	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bowel medicine	4	2	2	2	1	—	—	—	—	—	—	—	—	1	—
Rheumatism medicine	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—
Cough mixture	11	8	3	3	—	—	1	—	—	4	—	—	1	1	1
Skin ointments	8	5	3	1	—	1	1	—	—	2	—	—	1	1	1
Herbal remedies	2	2	—	2	—	—	—	—	—	—	—	—	—	—	—

of the females and 21.5% of the males took aspirin—a significant difference between the sexes of 23.0±5.6. Regular users appeared to take it for headaches and not for rheumatic ailments, as there is not a rising incidence with increase in age; throughout the survey it was noted that the heaviest occupational incidence of aspirin-taking was among those engaged in dry indoor work, laundry workers (in dry posts), and female factory workers, and the incidence was low in A.R.P. workers in outdoor occupations. Nowadays aspirin is almost as much a drug of addiction as is morphine. Habit plays an enormous part in the consumption of aspirin. All three women taking aspirin daily did so to ward off headaches; only one of the five taking it at least weekly used it as an antirheumatic. Headache powders were also chiefly used to ward off and not to relieve headaches. One woman took two tablets of a proprietary compound four-hourly three days a week to ward off headaches. And very successfully, it appears, for she never has headaches; but she is lucky that the Government has protected her against worse things, for the tablets she takes contained amidopyrine until it was placed on the Fourth Schedule. We are ignorant of the remote effects of many common and seemingly harmless substances when used with such intensity over a long period of time. Few of these people had or ever had had headaches, but they took these substances as preventives.

Laxatives

As might be expected, laxative medicines were very extensively used, the salines markedly predominating over the vegetable laxatives. The percentage incidence of takers was highest in the office and laboratory workers and lowest in the A.R.P. workers, who lived a more or less open-air life. The habit factor was strongly shown by the saline-takers, more taking regular doses than those taking doses irregularly. The vegetable laxatives were for the most part taken irregularly, as the spirit or the state of the bowels suggested. Of recent years there appears to have been a swing from the use of the stronger vegetable laxatives to the milder salines, probably correlated with sustained and clever advertising. The influence of advertising is probably again shown in the gross predominance of one particular saline and one particular vegetable laxative. This does not seem to be due to any wartime zoning or rationing, but to be a matter of personal preference.

It is probably in relation to laxatives that the words "harmless and beneficial" (Viscount Gage, 1938) are most commonly applied. Yet besides the general objections to the regular use of laxatives (Hurst, 1924) many specific complaints have been voiced. In particular, liquid paraffin has been indicted. It is known to interfere with vitamin A absorption (Curtis and Ballmer, 1939) and also with vitamin D, calcium, phosphorus, and vitamin K (Council on Food and Nutrition, A.M.A., 1943). It is thus a most undesirable laxative to use when a patient is in need of these substances—e.g., in pregnancy. But I am indebted to Dr. F. J. Lewis for the information that of 12 pregnant women attending an antenatal clinic six were using liquid paraffin, some of them daily for over five months. One imagines that their Ministry of Food vitamin supplements were rather wasted. (The women are not included in this survey.) There is little doubt that laxatives used regularly over a lengthy period will cause deleterious effects. That a daily cascade of salines through the bowels may cause serious decrease of absorption of, for example, iron is possible, and it is known that calcium absorption is affected. Meulengracht (1938) reported a case of osteomalacia of the spine following the daily ingestion of Carlsbad salts (sodium sulphate and sodium bicarbonate) every morning for 35 years. No such striking case can so far be quoted against the vegetable laxatives, but there is no doubt of their harmfulness (Clark, 1938). Mass Observation (1943) report that there has been an increase in the taking of salines and laxatives in wartime, but mention no figures. They also state that there has been no increase in the taking of digestives.

The "Preventive" Group

The results of the inquiry into the taking of the group broadly known as preventives—iron, vitamins, etc.—were most disappointing. This group, it might be thought, would be used extensively after the propaganda of the last few years. Yet only 18 out of 277 were taking any of these substances, supposedly so beneficial, and half of these were laboratory assistants, mainly engaged in biological work, and two more were nurses. (Ten nurses were given iron and vitamins by the hospital authorities.) Thus only 7 out of 240 of the general workers took either iron or vitamins, and many of the females badly needed iron. It has recently been announced that the Ministry of Food is to insist that vitamin preparations must conform to certain specifications. But surely it is equally essential that iron preparations should not be sold as purporting to cure anaemia unless they contain adequate amounts of iron. Mass Observation (1943) report that preventives, including calcium as a cold-preventive, were taken by "many people." They also state that there has been an increase in vitamin-taking in wartime. The incidence suggested would appear to be much higher than that found in this survey. The explanation may lie in the introductory words of their bulletin—that those surveyed were an "unusually thoughtful" section of the population.

Comment

The two most gratifying aspects of the survey were: first, that the more exotic and extravagant remedies were not much used—a fact noted by Clark (1938); and, secondly, that there was a widespread desire for information among those questioned. They desired good health, and many quite sincerely thought that they were ensuring it by the taking of these medicines. The majority of those surveyed were ostensibly healthy people, and when the high proportion taking drugs is noted we may well wonder at the probable extent of self-medication among the sick folk. The excuse of poverty is lacking, as all those surveyed were covered by national health insurance, and it is a curious fact that the public have no faith in medicaments that can be obtained cheaply. While always recognizing the therapeutic powers of faith and hope, even in patent medicines, it is more than time that steps were taken to protect the public—both the sick and the healthy—from exploitation. Mr. A. L. Taylor of the Bristol Royal Infirmary has kindly estimated the cost of many of these substances in relation to their purchase price, and his figures reveal that there has been little improvement on the conditions revealed in *Secret Remedies* (1909). In fact, as Lord Horder said in 1938, in the last 25 years, with the increased extent and power of advertisement, the public is being swindled on a larger scale than ever before. The 1941 Act has checked a few of the more grotesque abuses, but the uselessness of the Act in really improving the sorry state of affairs is shown by a perusal of Chapman's book (1942). In view of the experience of Edwards and Kinsie (1940) it would be wise to be sceptical of the possibility of improving matters by increased education, for they found, after three years of intensive campaigning against venereal disease, that the persons surveyed were more ignorant than ever, and that the number of drug stores where counter-prescribing and the sale of patent nostrums went on was greater than ever. Every advance in medicine is mirrored by an extension of the patent medicine manufacturers into the same field. Recent belated action by the Newspaper Proprietors' Association (1943) in the censoring of advertisements will do little to help. Their ban does not go beyond the "code" of the members of the Proprietary Association of Great Britain (Chapman, 1942). For harmful substances can still be advertised and sold, and impressionable people will still be intimidated into using the advertised medicaments. Very few sick people are able to read dispassionately and discriminatingly advertisements of substances purporting to cure or relieve the ailments from which they suffer. To prevent much public exploitation and ill-health restrictive legislation is imperative.

Summary

The results of a census of self-medication among 277 persons engaged in various occupations in Bristol is presented.

The present data show that self-medication is independent of age for both males and females. For all medicines combined there was no difference between the sexes. Differences existed for specific remedies: the use of aspirin by females was significantly greater than by males, but the majority of the medicines involved too few persons for definite conclusions to be drawn.

Some specific groups of medicines and their effects are briefly discussed.

I wish to express my thanks to the Medical Research Council and to Prof. R. J. Brocklehurst for permitting me to make this survey; to Dr. H. Heller, Mr. A. L. Taylor, and Mr. W. R. Lush for their invaluable help; and especially to Mr. Horace Todd, who performed the statistical analyses.

REFERENCES

Chapman, H. E. (1942). *The Law Relating to the Marketing and Sale of Medicines*, London.
Clark, A. J. (1938). *Patent Medicines*, London.
Council on Food and Nutrition (1943). *J. Amer. med. Ass.*, **123**, 967.
Curtis, A. C., and Ballmer, R. S. (1939). Ibid., **113**, 1785.
Edwards, M. S., and Kinsie, P. M. (1940). *Venereal Disease Information*, **21**, 1.
Gage, Viscount (1938). *British Medical Journal*, **2**, 324 (also 1938, **110**, H.L. Deb., 5 s.).
Horder, Lord (1938). Ibid., **2**, 322 (also 1938, **110**, H.L. Deb., 5 s.).
Hurst, A. F. (1924). *Medical Essays*, London.
Mass Observation Bulletin (June, 1943), London.
Meulengracht, E. (1938). *Lancet*, **2**, 774.
Newspaper Proprietors' Association (1943). *British Medical Journal*, **2**, 462.
Our Towns (1943). P. 88, London.
Secret Remedies (1909). B.M.A., London.
Williams, L. R., and Hill, A. M. (1930). *J. Amer. med. Ass.*, **94**, 1292.

SAFETY IN OPERATING THEATRES AND ANAESTHETIC ROOMS

MEMORANDUM BY INSTITUTION OF ELECTRICAL ENGINEERS

In February, 1938, papers were read before the Institution of Electrical Engineers by the late Prof. W. M. Thornton and Dr. E. H. Rayner, and as a result the question was raised whether the Institution ought not to take the initiative in arranging for the discussion of safety in the electrical equipment of operating theatres and their ante-rooms, where there would appear to be danger of explosion of anaesthetic vapours. The Council was impressed with the wisdom of this course, and it was agreed that the Institution should set up a suitable committee to consider: (1) The electrical conditions and design of equipment necessary for the elimination of the risk of explosions. (2) The desirability of a Code of Safety Rules. (3) The arrangements which are appropriate for ensuring that safe equipment is installed and safe conditions are maintained.

Under the chairmanship of Mr. H. T. Young, the Operating Theatres Electrical Apparatus Committee was formed and appointed two technical subcommittees to carry out its work, one to deal with questions of static electrification, and the other to deal with apparatus, installation, and maintenance, with Dr. E. H. Rayner of the National Physical Laboratory and Mr. H. W. Swann of the Home Office respectively as chairmen. These committees began their investigations in February and March, 1939, but before much progress had been made the deteriorating political situation and the evacuation of many large hospitals from London caused the suspension of the work. However, in May, 1943, a communication was received from Dr. C. F. Hadfield, on behalf of the Council of the Association of Anaesthetists of Great Britain and Ireland, requesting that the work of the committee should be resumed, and a ready response was forthcoming from the council of the Institution.

It had become clear at an early stage that the elimination of danger from anaesthetic explosions must depend mainly upon the provision of safe electrical conditions and apparatus, and that, to achieve this, arrangements would need to be made to ensure that safe equipment was installed and that safe conditions were maintained. After having considered the advisability of drawing up a brief safety code, the committee unanimously adopted a suggestion put forward by Mr. Swann, that the detailed recommendations of the committee should be expressed in the form of a distinctive Warning Notice of a size and form adequate for display in operating theatres and similar locations where explosion risks might exist, so that its guidance should be constantly before not only the anaesthetists and surgeons but also the nursing and other staff employed.

In November, 1943, the Warning Notice in its final form was submitted to the council of the Institution, when it was decided that it should be sent to the Minister of Health with a request for distribution by the Ministry to hospitals, nursing homes, etc., in England and Wales; it was further agreed that, if it were adopted by the Ministry of Health, it should also be sent to the Scottish Office and to the Government of Northern Ireland for a similar purpose.

In Mar h, 1944, the committee learned that the Minister of Health had convened a representative interdepartmental conference, attended by representatives of the interested Government Departments, at which the decision had been taken to circulate the Warning Notice to all voluntary hospitals and to all hospital authorities in this country, and, through the agency of the Admiralty, War Office, and Air Ministry, to all Service hospitals in this country and abroad, after certain omissions and modifications had been made. It was also decided to delete the references to published work which had been given in the original Notice, but to include them in a covering letter sent to hospitals, etc., in this country.

At a meeting in March, 1944, the council of the Institution noted the dissemination that had thus been assured for the Notice, and authorized the publication of the Warning Notice in its revised form [reproduced in the *Journal* of July 1, p. 19], together with the present memorandum, which contains a note of the more detailed recommendations contained in the original draft. It was felt that as changes and re-equipment may be carried out in individual hospitals from time to time, it would be desirable that the medical and electrical experts concerned should be made aware of the full precautions which the Council of the Institution recommend. The major departures may be summarized as follows.

In their review the members of the committee were of the opinion that a very real risk existed that the persons of operating personnel might become charged with electricity, and an appropriate reference in this regard was made in paragraph (c) of the introductory matter. The paragraph also points out that the risk of a spark occurs when an object is brought nearly into contact with another at a different electrical potential. In the list of precautions and recommendations the committee added a recommendation to item 2 that when operations were finished for the session or for the day, all the ether should be removed from the apparatus.

In connexion with the equipment of operating theatres it was recommended that electric lamps connected to the main supply should be fitted with protecting shields of metal, glass, or other suitable material, and in the list in item 7 of the insulated apparatus which can be electrified in various ways portable anaesthetic equipments were included.

The important question of earthing received additional attention, and in connexion with item 8, which points out that trailing chains are useless when the floor is covered with dry, non-conducting rubber, cork carpet, or linoleum, the additional recommendation was made that in such cases earthings may be effected by attaching the chains to water pipes or to some other suitable earth connexion. The last sentence in item 9, suggesting that under war conditions damping of the floor may have to be adopted as an alternative to the use of special "conducting rubber," was added in the course of the revision of the original notice.

In dealing with the state of the atmosphere in the operating theatre, the committee in its original recommendations drew attention to the value of maintaining a satisfactory degree of humidity and put forward the recommendation that equipment for conditioning the air of the theatre should provide adequate and continuous control of humidity (approximately 60 to 70%).

References to Scientific Work

In the circular letter issued by the Ministry of Health to establishments in England and Wales (Circular 53/44 of June 4, 1944) a list of the references to scientific work which has been carried out on this subject was included, and for convenience these are set out below.

Memorandum 191/Med., published by the Ministry of Health (H.M. Stationery Office, price 1d.).
Rayner, E. H.: "The Risk of Explosion due to Electrification in Operating Theatres of Hospitals," *J. Inst. elect. Eng.*, 1938, **83**, 156.
Thornton, W. M.: "The Electrical Ignition of Mixtures of Ether Vapour, Air and Oxygen," ibid., 1938, **83**, 145.
Swann, H. W.: "Electrical Ignition of Anaesthetics," *British Medical Journal* 1938, **2**, 234.
"Anaesthesia Explosion Hazards" (Code of Safeguards, Bureau of Standards, U.S.A.).
"Combustible Anaesthetics and Operating-room Explosions," issued by the National Fire Protection Association, 60, Batterymarsh Street, Boston, Mass., U.S.A., price 15 cents.
Finch, G. I.: "Ignition of Explosive Anaesthetic Mixtures," *Proc. roy. Soc. Med.*, 1935, **28**, 1130.
Regulations for the Electrical Equipment of Buildings, 11th edition (revised), issued by the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2, price 1s.

KHARTUM SCHOOL OF MEDICINE

The seventh report, 1939–42, of the Kitchener School of Medicine, Khartum, records continued progress in spite of wartime difficulties. Graduates from the school have served as officers in the Sudan Defence Force—both within and outside the Sudan, and also in the Civil Medical Service. The course of professional studies consists—at present—of a year and a half at the School of Science and four years and a half at the Kitchener School of Medicine. The two teaching hospitals at Khartum and Omdurman provide the opportunity for all Sudanese medical graduates to spend two years in resident appointments in medicine, surgery, obstetrics and gynaecology, and ophthalmology.

A few lines may be quoted from the sympathetic and constructive Visitor's Report, 1942, by Major-General W. H. Ogilvie, consulting surgeon, M.E.F. "The hopes of Gordon, Kitchener, and Stack, men who loved the Sudan and sought its welfare, are here embodied, in a scheme to which those who are responsible for Britain's stewardship in developing countries can point with satisfaction. The present directors of the school are working in the spirit of that stewardship, determined to provide a centre of medical education which, though small, is of high quality. The searching character of the final examination, the insistence that all subjects must be taken at the same time, the 60% pass level, and the practice of inviting visitors from Britain to observe and comment, are evidence of a policy that aims to maintain and even improve a standard that is already high."

MEDICAL SICKNESS AND LIFE ASSURANCE

At the recent annual meeting in London of the Medical Sickness, Annuity and Life Assurance Society, Ltd., Mr. R. J. McNeill Love, chairman of directors, who presided, referred first of all to the special concessions which the Board of Directors had made to Service members. Before the war benefits were virtually restricted to the United Kingdom, but claims, not in respect of enemy action, were now being paid in any part of the world during in-patient treatment in hospital or from the day of embarkation if the member was invalided home. Prisoners of war were exempted from payment of all sickness premiums until they were repatriated. With regard to life assurance, the Board had resolved in principle to exclude only death due directly to enemy action, and it was hoped to pay in full all other claims, whether arising on Service or not. Over £4,000 had already been paid in claims to members who had been ill while over-seas. The chairman also announced that a special subcommittee had been appointed to consider the White Paper on a National Health Service; the Board was interested in its possible repercussions upon private practice. The annual report showed that new business in the Life Assurance Fund in 1943 totalled £185,780 for annual premiums of £5,779. Claims by death were higher at £30,079. The increase to £68,548 paid in benefit under the sickness fund was due to influenza and also to the decision to pay claims from over-seas. The invested funds had been increased by £217,268, and now stood at well over £2,750,000, more than 43% of the total being in British Government securities. The Board had arranged new head offices at 7, Cavendish Square, and when the time arrived the Society would move back to London from its temporary quarters at Highfield, Chesterton, Cirencester.

MEDICAL PROTECTION

The annual meeting of the London and Counties Medical Protection Society was held at Victory House, Leicester Square, on June 7, with Mr. W. M. Mollison, treasurer, in the chair. Sorrow was expressed at the death of Sir Cuthbert Wallace, who had been president of the Society since 1935, and until the beginning of the war was a regular attendant at its council and committees. The office of president remains vacant for the time being. Mr. Mollison said that the past year—the fifty-first in the Society's history—had been one of continued progress. There had been less litigation over trivial matters, but several important cases had been fought and won by the Society on behalf of its members. The number of applications for advice and assistance amounted to nearly 1,000. The net gain in membership had been 576. The income showed an increase, and the accumulated funds had now reached £96,400, with an investment reserve of £7,000 in addition. During the year, owing to the uncertainty as to the obligations of medical practitioners to report deaths to coroners, the Society and the Medical Defence Union had obtained the opinion of Mr. Roland Burrows, K.C., president of the Medico-Legal Society (see *Journal*, Nov. 27, 1943, p. 694). He understood that a number of members had applied for copies of this opinion. The report and statement of accounts was adopted, all the retiring officers and members of council were re-elected; and on the motion of Sir Robert Hutchison a vote of thanks was accorded to the staff and to the solicitors, Messrs. Le Brasseur and Oakley.

Nova et Vetera

HARVEY CUSHING'S LIBRARY

The Harvey Cushing Collection of Books and Manuscripts. Edited by Prof. J. F. Fulton. (Pp. 205. $8.50.) New York: Schuman's. 1943.

A private library of historical medical books is an expression of the development of a personality. A real collection is formed by slow accretion, and at each stage it reflects the literary interests of its collector. The late Harvey Cushing was early in the field, inspired by Osler, the prince of collectors and stimulators. When Cushing died in 1939 he left a charming essay on a Vesalian collection,[1] now reprinted in his posthumous work on Vesalius, and from this and other sources we surmise that Cushing must have started the unending quest for old medical works in the latter part of the '90's, when he was just under 30. From then to the time of his death he collected with enthusiasm and discrimination. In more recent years the need for specialization became evident, and he had a working arrangement with his friends Arnold Klebs and John F. Fulton. Klebs was to concentrate more on incunabula and Fulton on the seventeenth century. The result is that Cushing's own collection is particularly rich in anatomical and surgical texts of the sixteenth century. The whole of the three libraries mentioned have gone to form the kernel of the Historical Medical Library at Yale, and the present catalogue is the first to appear of the three which will describe this nucleus.

It is of interest to compare the Cushing collection with other libraries which have been catalogued in recent years, and especially with that of Osler, Cushing's mentor.[2] The Cushing collection contains about 7,900 entries; that of Osler has about 7,800. Osler has 54 editions of Hippocrates against 13 of Cushing, but Cushing has 42 of Ambroise Paré against the 7 of Osler. They appear to have been almost equally interested in Galen (about 60 editions each). Cushing is peculiarly weak on Celsus; perhaps he considered Celsus merely as a disseminator. Osler's own catalogue of his collection was based on the example of Ferguson's *Bibliotheca Chemica*, or catalogue of the Young collection,[3] and it is to be expected that the latter would be much richer in books dealing with the development of pure science. Outstanding examples are the editions of Albertus Magnus, Glauber, Hermes Trismegistus, and Raymond Lull in this collection. Both Cushing and Osler compare favourably (about 20 editions) with the Paracelsus editions in the Young collection; but all these are driven into the shade by the 201 editions of Paracelsus which Ferguson had in his own library, a catalogue of which (limited to 40 copies) has recently been published[4] by Dr. W. R. Cunningham, the Hunterian Librarian at Glasgow. It has also been very interesting to compare the Cushing library with the collection of early medical books owned by the late Dr. Le Roy Crummer.[5] On Albertus and Aristotle Crummer has it; but otherwise there is little in his collection which is not represented in Cushing, and the latter's editions are sometimes earlier. Cushing is also especially rich in Culpepper, Guenther, Berengar da Carpi, Mondino, Boerhaave, Cardan, Tagault, Boyle, and Harvey. The manuscripts and incunabula are excellent. There are certain weaknesses which possibly throw some light on the tastes of the collector. Of the *Religio Medici* he has nothing earlier than Keynes's No. 6, and the Wilkins collected edition is not included. He has only the facsimile of the first edition of Auenbrugger's *Inventum Novum*; while the Fernel collection is good, there are unexpected omissions; and while he has the catalogue of Mead's pictures, he does not have the catalogue of his library. There is no original edition of John Snow, and nothing at all by Budd. Volumes II and III of Priestley's *Experiments and Observations* are missing. Karl Pearson and Raymond Crawfurd are poorly represented, and while Osler is allotted 60 entries, Clifford Allbutt is given only 5, and *Greek Medicine in Rome* is not included.

The works of Vesalius are the gems of this collection. Here Cushing far outstrips Osler, who first taught him how and where to buy them. Against Osler's 14 early editions of different works, Cushing has 41. It is sufficient to say that this collection is the basis of Cushing's monumental *Bio-bibliography* which Messrs. Schuman's have recently published.[6]

Prof. Fulton calls this catalogue an "experiment in bibliography." It is essentially a short-title catalogue. (In some few instances there appears to be doubt regarding the actual edition described.) Authors' names are given in the vernacular and punctuation is largely omitted. Though the student will have to go elsewhere for further particulars, the method used has certain very definite advantages, and cross-reference is greatly facilitated. Prof. Fulton and his co-workers are to be congratulated on the completion of their long task, the publishers on the production of a pleasing and easily handled volume, and Yale University on the acquisition of a personal library of great distinction and importance.

E. A. U.

[1] Cushing, H., *Bull. Hist. Med.*, 1940, **8**, 381.

[2] Osler, W., *Bibliotheca Osleriana*, Oxford, 1929.

[3] Ferguson, J., *Bibliotheca Chemica*, 2 vols., Glasgow, 1906.

[4] *Catalogue of the Ferguson Collection of Books*, mainly relating to Alchemy, Chemistry, Witchcraft and Gipsies, in the library of the University of Glasgow. (Edited by W. R. Cunningham.) 2 vols., Glasgow, 1943.

[5] *A Catalogue of Manuscripts and Medical Books printed before 1640* in the library of Le Roy Crummer, Omaha, Nebraska. Omaha, 1927. (Privately printed and limited to 100 copies.)

[6] Cushing, H., *A Bio-bibliography of Andreas Vesalius*, New York, 1943.

PEPYS AND ALCOHOLISM

Having recently made a study of venereal diseases in Pepys's Diary[1] (see *Journal*, 1944, **1**, 298), Dr. J. D. Rolleston has made a similar inquiry concerning alcoholism.[2]

In the seventeenth century, and particularly during the Restoration, alcoholism was prevalent in all classes of society from the King downwards. Of special interest was the case of Pepys himself, who, after being an alcoholic subject, became, if not a complete abstainer, a very moderate drinker, and played an important part in the campaign against drunkenness in the Royal Navy, in which it was rampant. Total abstainers in those days were exceptional. Such a one was Mr. Prynne, who "at a great dinner in good company would not drink any health, even not the King's, but sat down with his hat on, but nobody took any notice of him at all." Apart from the King's Proclamation against drinking, swearing, and debauchery issued in the first year of his reign, Charles II was far from showing any opposition to inebriety, but was remarkably lenient towards the scandalous drunkards in his Court. A similar view was held by Prince Rupert, who on the occasion of a man being dismissed from his office of boatswain for drunkenness exclaimed, "God dam me, if they turn out every man that will be drunk, they must turn out all the commanders in the fleete. What is the matter if he be drunk, so when he comes to fight he do his work? At least let him be punished for his drunkenness, and not put out of his command presently."

As he had shown in his previous paper on Pepys, Dr. Rolleston remarked that several explanations had been offered for his numerous amorous escapades, the account of which had been more or less concealed by Victorian editors; but as many of his erotic adventures took place in ale houses, it was not improbable that alcohol was responsible to some extent for their occurrence.

Apart from chewing roll tobacco as a prophylactic against plague Pepys does not appear ever to have made any use of tobacco or other narcotic, but on one occasion he protested to the Commissioners of the Admiralty on "the incorrigible liberty found among workmen and watchmen taking tobacco."

Reports of Societies

THIOURACIL FOR HYPERTHYROIDISM

At a recent meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland Dr. L. K. MALLEY, in a paper on thiouracil in the treatment of thyrotoxicosis, observed that the toxic reactions from thiourea and thiouracil included agranulocytosis, increase in the size of the goitre, leucopenia, and dermatitis. He gave an account of three patients suffering from Graves's disease treated with thiouracil.

The first, a single woman aged 55, had no visible or palpable thyroid enlargement, but the pulse rate was 110, there was auricular fibrillation, the B.M.R. was + 55%, and the blood cholesterol was 69 mg. per 100 c.cm. She was given an initial test dose of 0.2 g. of thiouracil, followed by 0.2 g. thrice daily for three days, the dose being then increased to 1.2 g. daily. After two weeks the B.M.R. fell to + 13% and there was improvement in symptoms. A maintenance dose of 0.2 g. was determined, but on the thirty-fifth day of treatment signs of mild myxoedema appeared, the B.M.R. was − 34%, and the blood cholesterol 248 mg. per 100 c.cm. Thiouracil was now given in a dose of 0.2 g. every fourth day. After eleven weeks of treatment the patient felt quite well; all symptoms of hyperthyroidism had disappeared; the pulse rate was 72 and now regular after a course of quinidine; she had gained 19 lb. in weight; and the B.M.R. was − 7%. In the fourth month of treatment a moderate enlargement of the thyroid gland was noted.

The second patient, a married woman aged 33, had received preliminary treatment with Lugol's solution and the B.M.R. had fallen from + 80% to + 45%, but clinical evidence of hyperthyroidism persisted. Treatment with thiouracil resulted in a fall in the B.M.R. to + 17% in three weeks and + 3% in seven weeks. Exophthalmos and the goitre were unaffected, but all symptoms disappeared, and the pulse rate was reduced to 72. In the third patient, a man aged 38, treatment was discontinued on the third day owing to leucopenia (4,550 per c.mm.) and reduction of the granulocytes to 39%.

From a study of the literature and from a brief personal experience with thiouracil Dr. Malley concluded that it should be used with caution and only under properly controlled conditions, with frequent estimations of the basal metabolic rate and leucocyte and differential blood counts. Release of the drug for general use was premature. For the present its use should be restricted to the pre-operative preparation of patients awaiting thyroidectomy, to those with persistent thyrotoxicosis after operation, in juvenile cases, and in the few cases in which operation was refused or considered inadvisable.

The PRESIDENT thought evidence showed that some cases were resistant to this drug. Dr. D. K. O'DONOVAN advocated giving a minute dose first and then steadily increasing it. Thiouracil sometimes produced an irritating nettle-rash; some of the preparations were nauseating and might cause diarrhoea and vomiting; the least toxic preparation, he thought, was methylthiouracil. Dr. T. M. KAVANAGH mentioned the case of a female child aged 2½ with toxic goitre, who did not improve on Lugol's solution. Two surgeons were doubtful about operation, so she was eventually put on thiouracil. After 3 weeks' treatment her white cells showed a small diminution and the gland itself was now smaller; she had put on weight. Graves's disease was very rare in childhood, and rarer in boys than in girls. A case had been reported in a boy of 2½ years, and in a female infant of 1 year.

[1] *Brit. J. vener. Dis.*, 1944, **1**, 298.
[2] *Brit. J. Inebriety*, 1944, **41**, 71.

Five Cases of Familial Paresis

Dr. MORGAN CROWE read a communication entitled "Familial Spastic Paresis with Strabismus." He chose this to describe the presence of squint in four and weakness with spasticity of the limbs in the five children of a family. The births of the children, whose ages were 17, 16, 13, 11, and 7 years respectively, were normal; no instruments were used. Their present disabilities were noticed in early infancy and had shown no tendency to spread; otherwise there was nothing abnormal in their history. Their parents were in good health and did not suffer from any similar defect, nor could they recollect any associated condition among their relatives. The lower limbs of these children showed varying degrees of adduction deformity and weakness. This permitted three of them to move about in a slow shuffling manner, with a "scissors" type of gait; one could propel herself only by holding on to a chair or wall; the youngest, the most seriously affected, could not stand by herself. In each child muscle tone was spastic in the lower limbs; knee- and ankle-jerks were increased, together with ankle clonus; but in only one child could a definite plantar extensor response be elicited. Club-foot is present in two cases; it had existed in another child but was rectified by surgery. Different degrees of hypermetropia, with visual acuity of about 6/12, were present in each child and accompanied by well-marked squint in four. Sensation generally, and the upper limbs, were normal; while mentally they were about two years behind the average for their age.

The condition would seem to be a modified form of cerebral diplegia and might perhaps be described as a spastic paraplegia or Little's disease; but the considerable degree of voluntary power in the legs of three of the children made paresis a more descriptive term. The loss of power, with evidence of upper motor neurone involvement and retention of sensation, seemed to negative any other diagnosis. The blood Wassermann reaction of parents and children was negative. The occurrence of the five cases in this family seemed to rule out infection, trauma, prematurity, or any abnormality associated with birth as the cause, for it was unlikely that any one of these conditions could have been present on each occasion. A failure of development, or a degeneration of motor cells or pyramidal fibres, would best explain the symptoms and signs. Photographs illustrating the defects were shown.

At a recent meeting of the Midland Tuberculosis Group of the Society of Medical Officers of Health Dr. George Jessel, a consultant tuberculosis officer to the Lancashire C.C., pointed out that the dispensary was the pivot of the tuberculosis work, which should be run by specialists in chest diseases, who should be paid as such. Improvement was required in buildings, general institutional and *x*-ray facilities, and in the co-operation with other specialists, as well as more efficiency in the environmental work. Policy and progress were dependent upon administrative officers who were often far from expert on the subject; fortunately many M.Os.H. were now progressive. In discussing the White Paper it was agreed that the revision of boundaries and the enlargement of areas would help to ensure a uniform service of high quality. It was important, however, that the clinical and environmental aspects must not be dissociated, as tuberculosis is a public health service.

Correspondence

Operations on Infants as Out-patients

SIR,—I see from your correspondence columns (K. F. Pollaczek, June 3, p. 764) that there is a tentative suggestion about the wisdom of operating for hernia in young children as out-patients. Forty-odd years ago I was impelled to adopt this plan because of the very limited accommodation for infants and young children in the Newcastle-upon-Tyne Royal Infirmary at that time. A not inconsiderable and developing experience subsequently taught me that it is perfectly safe to undertake most operations that are likely to be necessary up to about 5 years of age as out-patients. Of course older children can be treated in the same way, but after 5 there is not the same necessity, for at times of great pressure such children can be accommodated among adults with little upset to either. For years now I have sent infants home on the day of operation carried out for all varieties of hernia, for umbilical fistula, even when it has been necessary to resect and anastomose bowel, for acute intussusception, and for other abdominal emergencies like the occasional acute appendicitis in the very young. When I was doing a considerable number of cleft-palate operations, cases in which the anomaly was limited to the soft palate or little more were nearly all done during the first twelve months, and the patients were sent home the same afternoon. I believe that in most cases these little ones have a better chance if dealt with in this way, for they go back to an environment to which they are accustomed, and, at least in normal times, they receive the undivided attention of persons with whom they are thoroughly familiar.

Of course it must be understood that these patients were not treated in any haphazard way. Cases which were not emergencies were always previously seen and examined and the proposed course explained to the parent. On the day fixed for operation they were brought to the day-room of the ward two or three hours before in order that they might receive the essential preparation and so that we could be sure the stomach was not overloaded by the time they reached the table. Emergencies had to be seen and dealt with more or less off the street, though if considered to be an advantage the necessary delay was arranged.

The actual operations were nearly always carried out in the regular operating theatres on the daily list. Except for a short period when trying out spinal anaesthesia and the very occasional cases where local infiltration anaesthesia was employed, general inhalation anaesthesia was used, either the A.C.E. mixture, open ether, or chloroform, and in that order. No premedication of any sort was employed. The children went back to the ward day-rooms until they had safely recovered from the anaesthetic and it was clear there were no immediate complications. As a rule they left in their mothers' arms, and mothers were told that if there was the slightest anxiety they were to be brought back to the hospital at any time of day or night. One miserable little infant, a cretin, died after circumcision, but that was due to haemorrhage aggravated by a tight bandage behind the corona.

Among the large number of other cases I can remember only one that was returned, and that was for the treatment of haemorrhage after a cleft-palate operation, the child recovering. Occasionally mothers brought the child back the next day or within the next few days because it would not settle or the dressings had slipped or for some other reason, but, on the whole, the results were most satisfactory. Here I might mention that dressings ought to be very carefully applied and bandaged well beyond the area. For years I have used anchored dressings tied on with a stitch passed through the skin as described and recommended by the late Sir John Lynn Thomas of Cardiff. In the first instance this practice of out-patient operating was a matter of expediency due to bed shortage, but it soon developed into an accepted routine, which I have no hesitation in recommending.—I am, etc.,

G. GREY TURNER,
Professor of Surgery.

British Postgraduate Medical School, W.12.

The Term "Blast"

SIR,—After this war there will be a spate of statistics on the various body injuries peculiar to warfare. This letter is a plea that the influence of fashion on diagnosis may be taken into account. Earlier in the war "blast" was a fashionable diagnosis. I once had the pleasure of meeting a medical officer who had seen over 100 instances of this interesting condition. In an experience of over 2,000 casualties, many of whom had been in a closed compartment with a bursting bomb or torpedo, I have only once made a diagnosis of blast lung; necropsy showed him to have his bronchioles choked with sand and mud. An officer with a diagnosis of blast lung has been transferred under my care recently, and radiography showed him to have a fractured skull vault, a crush fracture of the first lumbar vertebra, many fractured ribs, and a haemopneumothorax on each side. Nevertheless he is down on someone's records as "blast." Is it possible that blast is commoner among sheep and goats than among men?—I am, etc.,

FRANK STABLER,
Surgeon Commander, R.N.V.R.

Thiouracil and the G.P.

SIR,—I have followed the reports of thiouracil with great interest, particularly the account in the *Journal* of the discussion at the Royal Society of Medicine (June 24, p. 852). There are, however, two somewhat disturbing opinions expressed by the specialists who took part in this discussion. It is reported that Mr. Cecil A. Joll "hoped that treatment with thiouracil would be allowed only under strict control, and that manufacturers would not release this powerful and dangerous drug to all and sundry." Dr. S. L. Simpson appears to support this by expressing the opinion "that it was a potentially dangerous drug and at present should be used only by those who had specialized knowledge and were capable of observing their cases closely." If it is the opinion of these speakers that thiouracil should be regarded as a dangerous drug whose sale is to be limited strictly to members of the medical profession, then I am in complete agreement with them. But these two passages which I have quoted, when taken with their context, would imply that the sale and use of these drugs should be further restricted to the élite among the specialists, and that the great majority of the medical profession should be placed on the same side of the fence as the layman, who is unable to obtain the drug except on a medical prescription.

Now if I have correctly interpreted these remarks, certain fundamental questions are raised. Who, for instance, is to decide who is a specialist who may safely be entrusted with supplies of thiouracil? Are the manufacturers to have lists of doctors whom they may supply, and who is to provide these lists? It possibly may not have occurred to the pundits of the Royal Society of Medicine that even general practitioners sometimes take a keen interest in their cases and are eager to follow the latest developments of research, particularly when there is afforded so powerful a remedy for a hitherto intractable disease. Surely the only criterion of trustworthiness for the use of these drugs must be the practitioner's own conscience. A man who has kept himself in touch with such information and reports as are available, and has carefully studied the needs of his individual patients, may safely be left to decide whether he is in a position to use these new remedies without endangering the health of those who trust him.—I am, etc.,

D. STANLEY-JONES.

Hayle, Cornwall.

Chemotherapy in Otitis Media

SIR,—Mr. Steele's letter in your issue of June 24 (p. 854) emphasizes a very important point. If sulphonamide therapy is withheld in the early stages of otitis media we shall have many more mastoid infections. I have seen many "threatened mastoids" resolve completely under adequate chemotherapy, but, as Mr. Steele points out, it is the general practitioner who sees these cases in their early stages, in which their treatment is so important.

I think the general practitioner of to-day is very alive to the importance of this early treatment. Of course this does not mean that every case of P.U.O. should be put on sulphonamide therapy, but once a diagnosis of acute otitis media is made

this treatment should be started. Our admissions of acute mastoiditis are only about a third of those in pre-sulphonamide days, and I venture to think they will even get less when early adequate treatment is universally given.—I am, etc.,

Guildford. T. B. JOBSON.

Recurrent Laryngeal Paralysis complicating Infective Hepatitis

SIR,—I was most interested to read the article on the nervous complications of infective hepatitis by Dr. F. Graham Lescher.

Some time ago I treated a lance-corporal for moderately severe infective hepatitis with jaundice, during the course of which his voice became husky, and the E.N.T. specialist, after reporting *nil* abnormal on the first complete examination of the patient, reported a commencing paralysis of the left recurrent laryngeal nerve. The otologist said that the paralysis really began before his eyes. The paralysis became complete and then made a very gradual recovery over a period of months. There were no other neurological signs or symptoms. There was no possibility of diphtheria, either cutaneous, faucial, nasal, laryngeal, or cryptic. Numerous investigations, such as blood sedimentation rate (normal), Wassermann reaction (negative), complete blood counts, *x* rays (root of neck, chest, barium swallow, etc.), etc., were carried out and repeated.

No therapeutic agents used in the treatment of the infective hepatitis could have been responsible for the paralysis of the recurrent laryngeal nerve. Such treatment consisted of high protein, high carbohydrate, high vitamin (including massive ascorbic acid therapy and "multivite" tablets), and fat-free diet, sod. bicarb. 5j thrice daily after food and mag. sulph. in the morning when necessary.

As I was unable to demonstrate a known cause for the paralysis of the left recurrent laryngeal nerve, which occurred during the course of a moderately severe attack of infective hepatitis in a subject free from syphilis, I felt justified in regarding the neurological lesion as a complication of infective hepatitis from which the patient was suffering.—I am, etc.,

J. MACKAY-DICK,
Major, R.A.M.C.; Medical Specialist, M.E.F.

Sodium Pentothal in Nasal Operations

SIR,—All of us will be very grateful for Dr. Sandiford's advice (June 17, p. 826) on the administration of sodium pentothal.

In China, as a missionary, I did all the nasal operations under twilight sleep and cocaine, and continued with this method on returning to England until sodium evipan was introduced. Then I resorted to sodium evipan, only to turn to sodium pentothal as soon as it was on the market. It is indeed a wonderful anaesthetic. A few days ago I did a septum, Caldwell-Luc, and a Sluder's sphenoidectomy under this anaesthetic, and then, as there was no pus, only thickened polypoid membrane in the nasal sinuses, I dissected out the tonsils while the patient was under the sodium pentothal, and it proved to be a perfect anaesthetic for this extensive operation. The pre-anaesthetic was morphine 1/4 gr., scopolamine 1/150 gr., atropine 1/100 gr., and oxygen given during the whole operation through an intrapharyngeal tube.

I have had only one death among the many patients operated on in two hospitals and two private nursing homes. This was a private patient, a woman, and while the pentothal was being administered I painted the face with industrial spirit. The patient ceased to breathe, and in spite of artificial respiration she died almost at once, before I had time to arrange the towels or commence operation. The pre-anaesthetic in this case was omnopon 1/3 gr., scopolamine 1/100 gr., and atropine 1/100 gr. The anaesthetist, who is highly skilled and has administered many anaesthetics for me, said the death was due to my applying the industrial spirit while he was inducing anaesthesia, so now my first rule is never to go near the patient until he is fully under the anaesthetic, applying cocaine in the bedroom before the patient is carried to the theatre. My second rule is to have picrotoxin in every theatre in which I operate, as unfortunately there was no picrotoxin in the theatre on that fatal day, and I consider the drug far superior to coramine or oxygen in such a case. My usual anaesthetist administers oxygen during the whole operation, inserting a small metal mouth tube before commencing the anaesthetic, and then he inserts a curved rubber tube attached to a metal tube into the pharynx, through which he administers oxygen.

To sum up: in nasal operations safety is produced by (1) never touching the patient until the anaesthetist says the patient is not only asleep but also well under the anaesthetic; (2) never operating without having picrotoxin at hand for intravenous injection; (3) having a tube in the pharynx for the continuous administration of oxygen, which renders the second safeguard unnecessary except for my own peace of mind; and (4) giving a minimum dose of morphine or omnopon—i.e., 1/6 or 1/8 gr., never 1/4 gr.—as I believe a contributory cause of death in my one fatal case was the administration of too large a dose of omnopon.

These extra notes might be added to Dr. Sandiford's most helpful advice.—I am, etc.,

Harrogate. W. S. THACKER NEVILLE.

Ether and the Oxford Vaporizer

SIR,—I was sorry to see a letter in your correspondence columns deprecating the use of ether in the Oxford vaporizer. At the Wellhouse Hospital, Barnet, we have used this machine for some considerable time for the anaesthetization of many hazardous cases, and our results have been quite strikingly successful. In case some practitioners should feel that the use of ether is out of date and that they are not doing their best for their patients I should like to record a recent case.

A man aged 40 was admitted as an air-raid casualty. He had received blast from a bomb on his left side and the whole of the left side of his body was peppered with innumerable fragments of glass, some of which had passed into the abdomen. It was felt that he was suffering from intraperitoneal haemorrhage as well as very severe shock. Ten days previously he had undergone the operation for artificial pneumothorax for tuberculosis on his right lung, the one remaining lung being on the blasted side. It became evident that to save his life an exploratory laparotomy must be done.

A request was made to the surgeon to use local anaesthesia, but he requested ether through the Oxford inhaler, and I agreed to administer it. He was given endotracheal oxygen–ether from the Oxford vaporizer. The spleen was found ruptured and was removed, but the haemorrhage continued, so the surgeon had to make a thorough exploration. In the mesentery numerous branches of superior mesenteric artery were found bleeding and a number of vessels had to be tied. There were eleven perforations in the jejunum, and it was obvious that the intestine would have to be resected to include the damaged mesentery, and this was done with end-to-end and precautionary side-to-side anastomosis. The abdomen was closed after an operation lasting one hour and forty-five minutes from start of anaesthesia to completion. The patient made swift and uncomplicated recovery. There was no post-operative chest or any other kind of trouble.

Now this is only one of the many difficult and dangerous cases which come our way with frequency. I believe that ether is still the best anaesthetic for these cases and that the Oxford vaporizer is the best way of administering ether.—I am, etc.,

New Barnet. JOHN ELAM.

Pentothal Anaesthesia

SIR,—I have read with great interest the letters of Drs. F. W. Roberts and H. B. C. Sandiford (June 17, p. 825) on the administration of pentothal. An ardent pentothal "fan," I have used it very extensively indeed since it came on the market, and have never yet experienced a fatality following its use; I attribute this to the fact that I have a very lively respect for this powerful anaesthetic agent. To avoid fatalities I would insist on the following:

1. It should be administered by experienced anaesthetists only. No rank-and-file medical officer, in fairness to the safety of the patient, should be allowed to use this powerful—dangerous, if you like—drug.
2. It should never be administered to casualties suffering from severe haemorrhage or prolonged exposure.
3. It should never be used in toxic or debilitated cases.
4. It should be used with the very greatest care following injection of morphine, especially after repeated injections. The respiratory depression caused by pentothal adds to and accentuates the similar action of the morphine, leading in many cases to some anxiety.

5. The solution of pentothal should never exceed 5%; the more serious the case the weaker the solution.

6. An assistant should *always* be at hand to see that no occlusion, partial or otherwise, of the air passage occurs; *the jaw must be held up*, otherwise severe spasm may occur.

7. Don't hurry anaesthesia by rapid administration; 2 to 3 c.cm. in the first minute—no quicker; subsequent administration should be slower.

8. When the patient is surgically anaesthetized stop the administration, and only when necessary continue the injection 1 c.cm. at a time as required.

9. The following should always be at hand: oxygen, picrotoxin, ephedrine, and coramine; and, needless to say, the doctor conducting the anaesthetic should know how and when to use them.

The dose required to produce anaesthesia varies enormously; hence the required experience. To illustrate this wide range of dosage I cite three cases of my own.

1. M., aged 17. Operation, extraction of four teeth. 1¼ g. only just produced the necessary anaesthesia.

2. M., aged 37. Operation, nasal septum. Premedication 1/100 gr. atropine and 1/4 gr. morphine. 2 g. required to produce anaesthesia. Respirations and pulse normal. Twenty-five minutes after the injection the patient was talking quite normally.

3. F., aged 34. Previous history of tuberculosis but no actual lesion. Operation, hysterectomy for fibroids. Premedication 1/100 gr. atropine and 1/4 gr. morphine. Pentothal requested, to be followed by N_2O and O. One large ampoule of pentothal (1 g.) dissolved in 20 c.cm. water. Of this 7 c.cm. produced surgical anaesthesia. Fifteen minutes later patient started to move; 3 further c.cm. in three minutes was injected. Five minutes later respirations stopped, pulse feeble. The syringe was withdrawn, gentle artificial respiration and continuous oxygen were started. Two c.cm. picrotoxin intravenously and coramine intramuscularly were given. The operation was so far advanced that it had to be completed. After fifteen minutes respiration restarted and pulse very much improved. The operation was finished successfully, and after four hours the patient was fully awake and her condition was good. The whole operation —lasting 45 minutes—was performed on 1/2 g. of pentothal and the premedication.

Even the most experienced anaesthetist, exercising the greatest care and vigilance, will get, when he least expects it, a reminder that pentothal anaesthesia is not always "child's play."—I am, etc.,

OSWALD J. MURPHY,
Hon. Anaesthetist, St. Vincent's Hospital.
Dublin.

Metatarsalgia

SIR,—As a unit medical officer in the R.A.F. I see numerous cases of painful feet, and I was particularly interested in the letter by Mr. A. C. Fisher (May 27, p. 731) on the subject of metatarsalgia.

The term "metatarsalgia" may be applied to several conditions, but the one to which Mr. Fisher refers is clearly the static or relaxation variety which follows unaccustomed standing or walking (particularly the former, in my experience), and I think few will disagree with his statement that a metatarsal bar is singularly ineffective in its treatment. I cannot agree, however, that the existence of an anterior transverse arch of the foot is a piece of anatomical fiction, for, although flattened at every step, it is there to be seen in the normal foot, and is in fact restored when fallen by the very exercises described by Mr. Fisher. Moreover, the arch can be exaggerated by voluntary activity of the muscles of the foot. Surely, too, the large thick callosities so often seen beneath the head of the third metatarsal are sound evidence that in this condition more pressure than normal is being borne at this site—i.e., the arch has fallen.

However, the main point of this letter is to support the treatment which Mr. Fisher describes and to stress the importance of foot exercises in the prevention of painful feet. Being convinced from the effect of rest, and from the history of prolonged standing almost invariably given, that the condition results from muscular fatigue, I keep the patient in bed for two days before commencing the exercises with the patient seated and his feet on the floor. As the power of flexion of the toes increases the feet can be made, by alternate contraction and relaxation of the muscles, to crawl forwards along the floor in caterpillar fashion. This exercise is continued at first for five minutes and later ten minutes every hour until the patient can pick up a handkerchief with his foot. In the early stage hyperhidrosis of the feet is usual, and much relief is given by contrast foot-baths twice or thrice daily. Before discharge it is impressed on the patient, as Mr. Fisher points out, that he must continue the exercises whenever he is standing, alternating them with rocking slowly up and down on the toes.

Having experienced this condition personally, I can confirm whole-heartedly the pain which it produces and the marked and lasting relief afforded by redeveloping the muscles.—I am, etc.,

A. STANDEVEN, F.R.C.S.Ed.,
Fl. Lieut. R.A.F.V.R.

Cold Agglutinins

SIR,—In your leading article on cold agglutinins (July 3, p. 16) you state that "an abnormally high titre of cold agglutinins has been found in the serum in a variety of diseases, but most constantly in atypical (virus) pneumonia and in trypanosomiasis, in both of which diseases the reaction is of diagnostic value." It may be of some interest to state that some weeks ago I examined six samples of serum, sent to me by the courtesy of the Director of Medical Services, Uganda, for cold agglutinins. The sera were separated from the patients' cells before being dispatched, and it was therefore only possible to test the former against Group O cells. The methods I used were similar to those given by Turner *et al.* (*Lancet*, 1943, **1**, 765), and my results were completely negative. All cases were proved ones of sleeping sickness, and the sera were tested for sterility on arrival.

Obviously no conclusions can be drawn from such a small number of cases, but it may be that haemautoagglutination in this disease is not so common as some authors and textbooks would lead one to believe.—I am, etc.,

KENNETH FROOME.
Godalming.

Estimation of Dental Caries

SIR,—There are several criticisms which could be made of the report on the improved dentition of London school-children (June 24, p. 837), but I wish to confine myself to one point only—namely, the method of examination adopted for classification of degrees of caries. It is absolutely impossible to gauge the extent of carious destruction with a mirror and probe examination only, and it is frequently impossible to detect interstitial caries except with *x*-ray films. I do not think that any dentist of experience who has consistently used *x*-ray films to check his routine examinations would dispute this statement.

Where caries has destroyed a large part of the crown the condition is clear, but Lady Mellanby seems unaware of the fact that a tooth may show only a slight stain, and, on drilling, it may be found that the caries has penetrated to the pulp tissue.

Dental research on the lines adopted by Lady Mellanby should only be undertaken if it is realized that: (*a*) *x*-ray examinations must be made; (*b*) every tooth showing signs of caries must be drilled to ascertain the extent of penetration of the caries. If it is not possible to conduct the examinations in this way then the research should not be undertaken.—I am, etc.,

DOROTHY SMITH.
Oxford.

Ophthalmologist and Optician

SIR,—I have followed with interest the recent correspondence on the status of the sight-testing optician, and feel that there are important points of view which have not yet been stated. I am one of the small handful of men who, before entering medicine and practising ophthalmic surgery, were opticians, and who should perhaps be in a position to view the question from a different angle from the purely medical and optical factions.

First, it must be realized that the sight-testing optician is essentially a product of the evolution of our present social system, and he has developed in response to a public demand for a retailer of spectacles who could at the same time advise as to the nature of the lenses required. In fulfilling this demand the optician has set himself voluntary, but at the same time fairly high, educational standards to ensure that the service he renders shall be of a definite value, and not only does he aim at becoming proficient in refraction but also at being capable in the detection of such abnormal conditions as should be referred to a medical man.

Secondly, it must, I think, be admitted by the medical profession that earlier in this century, during the period in which big development in the optical profession took place, the combined facilities offered by the ophthalmic surgeon and the dispensing optician were both inadequate and too expensive for the community as a whole.

Thirdly, even to-day, if all refraction work of the community was undertaken by the ophthalmic surgeon he would be grossly overworked and unable to give proper attention to what should be his chief activity—the care of the diseased eye. Moreover, if all refraction was done by medical men the proportion of ophthalmic work which might be labelled ophthalmic medicine and surgery would be very small, giving rise to the alternative of: (*a*) The employment of skilled surgeons with highly specialized knowledge in the mechanical measurement of errors in healthy eyes. (*b*) The creation of a body of medical men to be engaged solely in refraction and the reference of pathological conditions to his more skilled colleague. My comments on this are: (1) it would result in complete waste of medical training, knowledge, and skill that could be better employed in some other branch of medicine; (2) the optician properly trained in clinical methods could do the work.

There are, I know, many in the medical profession who regard the sight-testing optician as an evil. To them I would suggest that he must be regarded as a necessary evil, and that all possible must be done to minimize any harm which they consider he might do. The means for this are, in my opinion, obvious. Improved educational facilities must be afforded the optician, and this can be done both by the medical profession as a whole and by its members individually. For myself, I owe my initiation into ophthalmology to those optical organizations which instituted examinations for which I originally studied. I am indebted to the optical profession for a wide experience in refraction and the recognition of ocular disease; and I have to thank an income derived from optics for my medical training. To pay those debts I consider it a moral obligation to further in any way possible, especially in the field of education, the cause of the optician.

I have recently seen a document purporting to quote a letter from an ophthalmic surgeon who was at one time, like myself, an optician. This gentleman has, apparently, nothing good to say for the optician, optical organizations, or the requirements and facilities of optical education, and I cannot but feel how much better it would be for him to offer his criticism in a constructive and helpful manner to the optical profession, to which, I am sure, he owes his original interest in ophthalmology.

I was recently consulted by the Joint Advisory Committee to the Optical Profession (which represents some half-dozen organizations with, I believe, a total membership of over 8,000) regarding the future of optical education. Would it not be to the benefit of the community as well as the medical and optical professions if that committee had the advantage of the advice, co-operation, and practical help of leading and truly representative members of the ophthalmic section of the medical profession?—I am, etc.,

London, W.1. GEOFFREY EBBAGE.

A National Pathological Service

SIR,—It is indeed an interesting article that you published in your issue of June 10 on a national pathological service. It is very significant of the times in which we are living that a self-constituted group of leading pathologists should thus gratuitously undertake what even inveterate Governmental "planners" have not carried out.

There is abroad, not only in the medical profession but throughout the world, an entirely erroneous idea that the sorrows of the universe can be obviated by man-made plans. That most of these plans must be products of the essentially finite mind of man appears never to have been considered. Any hastily conceived plan or written scheme must necessarily be non-elastic and entail a measure of compulsion, more or less rigid, on the public and professions concerned. This present eruption of planning is surely the outward sign of a disease of the "body politic." There appears to be no method of assessing how widespread is the infection without recourse to the medium of publicity.

The plan put forward appears to partake of the full virulence of any and all of the plans for the compulsion of the public. Unfortunately the fact that these medical planners are prominent in their profession may blind the eyes of the rest of their colleagues to the essential unsoundness of some of their suggestions, which, while they embody some very useful and desirable points, also indicate a desire to meddle with matters entirely outside their scope.

It is worthy of comment that the "planners" are all largely of the academic type. That they should advocate the correlation of pathology under their own aegis is perhaps not difficult to understand. Unfortunately there must be a suspicion that these authors aspire to be the constituent members of the Gestapo-direction of the new plan. An indication of their outlook is the naïve suggestion that coroners' work should come under their protection and care. That coroners' work is in the hands of general practitioners is not a fact. Most coroners' work is in the hands of specialized pathologists and more and more is coming into their hands. Those concerned with this subject realize that there is so much coroners' work that it would not be fair for "senior hospital pathologists" to be expected to undertake it. Crime quite frequently *does* come to light during the performance of routine coroners' necropsies: is it suggested when this occurs that the "senior hospital pathologist" should drop the inquiry and hand it over to the medico-legal officials, or what? It is perhaps worthy of consideration that these ardent planners have not condescended to ascertain facts nor so far as can be seen to ascertain the views of those engaged in coroners' morbid anatomical work; neither have they, apparently, made any approach to the Coroners' Society.—We are, etc.,

E. E. HEANEY,
H. M. STANLEY TURNER,
DAVID HALER,
Guildford Practitioners Group.

Medical Training

SIR,—Criticism of the medical curriculum is a perennial subject, and doubtless there is something to be said for improvement in the courses of study for medical students, but one wonders if the wholesale criticism so often indulged in is not too severe. The test of anything is how it works when put into practice, and one definite test of the medical curriculum is found in seeking to apply in primitive conditions what has been taught in student days, for in primitive conditions one has to start from the foundation by gathering together the required equipment, and even to erect the necessary buildings for carrying out medical practice as inculcated by our teachers.

For almost twenty years I have been in medical work in the African bush and veld, and the experience gained has made me grateful to professors, lecturers, and the writers of medical textbooks. The chief regret has been that more was not made of student days. The daily dispensary has remained of absorbing interest. During the first five years after graduating there was hardly a day in which one did not encounter something that had been heard of or read about but not seen previously. How thankful one has been for the many hints garnered from teaching surgeons and physicians, helps which could be recalled with pleasure to oneself and profit to patients. So much has this been so that the conviction has grown that every scrap of teaching and experience can be made use of when out in the wilds on one's own.

For example, on one occasion I was confronted in the bush by a man with a dislocated shoulder, brought by a crowd of raw Africans. No anaesthetic was immediately available and without it there was failure in applying the standard Kocher's method for reduction. There seemed nothing for it but to have the patient taken by canoe to our hospital, which was twenty miles away. Then there flashed across the memory an afternoon in a surgical dispensary of a Glasgow infirmary, when a surgeon dramatically reduced a shoulder dislocation by laying the patient on the floor, standing on a chair and tiring the muscles of the patient's arm by pulling steadily on them for three minutes, then jumping over the patient's body and letting the arm drop in the passing. This method was hopefully attempted in front of the gaping crowd, and, coming off first attempt, rejoiced them because it so much savoured of the magic which African hearts love. That Glasgow surgeon will ever be gratefully remembered by his student. Such incidents could be multiplied indefinitely.

Thousands of patients are helped every year at the outposts of Empire by the application of the teaching which was given

by those whose work is so much criticized. If advice may be given to students, it would be along the line of absorbing all the knowledge they can from their teachers and textbooks. Such instruction, along with the help given by trained European nurses, is the biggest factor in postgraduate work abroad. Even the preliminary sciences should be studied gladly, for they provide a good base. The teaching of anatomy is most often the butt for criticism. Looking back one is not aggrieved at the amount of detail which had to be assimilated, rather the regret is that so much of what was taught has been allowed to slip the memory.

Professors, medical curriculum, British Medical Association, medical textbooks—all come in for sharp criticism. Professors are not always interesting lecturers, we know, but we are indebted to them, and their fairness in examinations is remembered with gratitude. It may be possible to improve the medical curriculum, but it is to be remembered that it has been built up after much thought, trial, and error. The British Medical Association may have its faults, since it is composed of human beings, but medical life and practice in the backwoods would lose much if the pages of the *British Medical Journal* were not available for perusal. Medical writers may give us dry books at times, but their compact volumes guide us out of many difficulties. One colleague, who built up a successful surgical practice, while operating used in his early days to have a number of books stuck up in the operating theatre, all open at the appropriate pages ready for reference in emergency, and he would have repudiated the suggestion of a critic to burn such tomes.

To criticize is easy, cheap, and destructive; but to lecture, demonstrate, and write is difficult, costly, and constructive. Let us give honour where honour is due.—I am, etc.,

Scottish Livingstone Hospital, Molepolole, S. Africa. P. M. SHEPHERD.

Character and Personality in the Medical Student

SIR,—Evolution has shown that in a self-sufficient community we have to have our dustmen as well as our doctors. The dustman is just as much of a specialist in his job as the doctor is in his and just as important. Heredity and environment are by no means negligible factors in a child's upbringing, and therefore we tend to look for our future dustmen among the children of dustmen and our fututre doctors among the children of doctors. Presumably when we painted ourselves with woad and lived in caves we were approximately equal in wealth, eminence, and social position. As time went on differences in social position due to differences in character and ingenuity developed, until at the present time we find ourselves members of a very complex community with its many specialized jobs and its many gradations of wealth. This evolution was gradual, natural, and inevitable.

It is well to remember that legislation should always be introduced for the good of the majority and not for the good of a few exceptional cases. To illustrate: legally it is criminal to induce an abortion except for certain specified reasons, and so in the exceptional case of a girl being raped and becoming pregnant the law offers no remedy. The Planning Committee of the College of Physicians takes the opposite view to this legal axiom, and for the sake of the few exceptional cases of dustmen's children wanting to become doctors throws open the portals of medicine to everyone.

I congratulate most warmly Dr. E. D. Broster on his courageous letter (May 27, p. 729). I feel it is high time that we paid tribute to our men of letters and our great industrialists instead of sneering at them in a manner calculated to gain momentary favour for ourselves in the eyes of our dustmen—a habit that is becoming far too fashionable nowadays. Let us realize that, in general, the possession of wealth, intelligence, and individualism is not a thing to despise, and that through centuries of evolution the doctor has achieved a certain social standing with a certain reputation for manners, courtesy, and sympathy which make him as acceptable in the tenements of the poor as in the palaces of kings.

In view of the foregoing I find it hard to appreciate the sentiments implied in Dr. H. E. Vickers's letter (June 17, p. 828), and wonder if he seriously asks us to put the clock back 2,000 years.—I am, etc.,

Menston, near Leeds. R. JOHN GOURLAY.

Spanish Medicine

SIR,—It would be hard to compile a more misleading article than the one on Spanish medicine which appeared in your issue of June 17 (p. 820). Will you afford me space to correct two major absurdities which are representative of a constantly recurring theme in the literature of modern amateur historians?

The first is a well-known myth about Michael Servetus. Your correspondent may have intended to deceive; I prefer to believe that he is ignorant either of the facts or of the plain meaning of his own words. However that may be, Servetus had no ecclesiastical music to face on account of his attack on Galen; nor did he fly from Catholic Spain to Geneva. He left Spain in 1529 as the secretary of the Emperor's confessor and spent the rest of his life wandering about Europe. His discovery of the lesser circulation was probably made at Paris, and, so far as is known, brought him neither ecclesiastical censure nor medical renown. He then wrote a book on theology, controverting a dogma which was dear to Calvin—the consubstantiality of the Father and Son in the Trinity. Calvin denounced him to the French Inquisition, from the prisons of which he escaped after a brief confinement, only to suffer death by burning at the hands of Calvin.

The second is summarized by your correspondent in a grandiloquent sentence: "The reason for this poverty of medical science . . . must surely be sought in the anachronistic survival of that spirit of authoritarianism which is the mortal enemy of experiment and discovery." For those of us who believe in the virtues of democracy and the vices of authoritarianism it would be nice if this were so, but, of course, it is nonsense. One could adduce countless examples, beginning with Galen (that ingenious experimenter who discovered the secretion of urine by the kidneys), to disprove this thesis; I shall content myself with three modern ones. (1) Both Pasteur (who lived and died a Catholic, by the way) and Claude Bernard received their first encouragement from Napoleon III, a free-thinking authoritarian. (2) The greatest advances in German medicine have all occurred under authoritarian regimes; the discovery of the antibacterial potency of sulphonamides by Domagk is only the latest example of a long series which stretch back to the beginning of the nineteenth century. (3) Pavlov commenced his great work under the Czars and finished it under the Bolshevists. Stalin, who is probably the most convinced authoritarian of all time, liberally encourages medical research.

It would indeed be much easier to argue in favour of the exact opposite of your correspondent's thesis; but the clear truth is that medical advances are quite independent of political or ecclesiastical regimes. They depend largely on the wealth and education of the country concerned. Spain is poor and her people have had few opportunities of secondary and university education, because she has been ruled for 100 years by an oligarchy of more or less corrupt politicians who were more concerned to expropriate than to obey the Catholic Church.—I am, etc.,

Dublin. T. W. T. DILLON.

Dr. Alexander Lipschutz, director of the department of experimental medicine of the National Health Service at Santiago, Chile, has been awarded the second $2,000 prize given by Dr. Charles L. Mayer and administered by the National Science Fund of the National Academy of Sciences, New York. The prize was offered for an outstanding contribution made in 1943 to present-day knowledge of factors affecting the growth of animal cells with particular reference to human cancer. The recipient of the 1942 award was Dr. Charles Huggins, professor of surgery at the University of Chicago. During the last six years Dr. Lipschutz, together with the Chilean scientists working in his laboratory, has studied the fibromyomas of the uterus which can be induced in guinea-pigs by injecting certain sex hormones of the female. The growths closely resemble the fibromyomas ("fibroids") which occur in women during the childbearing period, and Dr. Lipschutz has shown that like these they dwindle and vanish when the stimulation of the sex hormones is withdrawn, as happens after the menopause in women. He and his associates have sought means to prevent the occurrence and enlargement of the growths while the hormones are still acting, and recently they have found that some other hormones, from other organs, have this effect, as do also certain substances synthesized by chemists. The molecular configurations responsible for the influence of the antifibromatic agents are now under investigation.

Obituary

PROF. J. SHAW DUNN

Dr. A. PINEY writes:

May I pay a tribute to the memory of John Shaw Dunn, who held the chair of pathology in Birmingham when I was lecturer in pathology? The obituary notice in the *Journal* ignores the qualities of Shaw Dunn as a teacher and as a man. He was an excellent and lucid exponent of pathology, and everyone who attended his demonstrations in the post-mortem room was enthralled by his clarity. Admittedly, for a time after he started his work in Birmingham, both students and junior pathologists were very much in awe of his rather cold manner. It was not long, however, before he was described in the students' magazine as "a facultative humorist of the dry type"; and his personal popularity became so firmly established that there was much regret when he went to Manchester. Others who have worked with Shaw Dunn more recently than I can doubtless add much to our knowledge of him; but I feel strongly that the extreme honesty of mind, the care in the preparation of lectures, and the essential kindliness and humour of this outstanding figure among modern pathologists should be emphasized.

Dr. WILLIAM HABGOOD, who died in retirement at Bournemouth on June 6, aged 81, was medical officer of health for Sutton, Surrey, from 1908 to 1934. He studied medicine at King's College Hospital, and after qualifying as M.R.C.S., L.R.C.P., and L.S.A. in the early 'eighties, took the Brussels M.D. degree in 1888, and the D.P.H. of the English Conjoint Board in 1893. Before his appointment at Sutton and Cheam Dr. Habgood had been assistant M.O.H. at Cardiff and at Nottingham and assistant school medical officer under the Surrey Education Committee. He joined the B.M.A. in 1887, was secretary of the Section of Psychology at the Annual Meeting of 1891, and vice-president of the Section of Medical Jurisprudence at the Aberdeen Meeting in 1914.

Dr. HILTA INES CHRISTINA MORLEY, with her husband, Stephen Charles Morley of the Nigerian Marine Department, has died by enemy action at sea. Her maiden name was Pfister and she had a distinguished student career in the University of Western Australia, Perth, where she graduated B.A. (with first-class honours) in 1920, and in the University of Edinburgh, where she graduated M.B., Ch.B. (with first-class honours) in 1925. Dr. Morley had been lecturer in physiology at the University of Birmingham, medical officer to St. Alfege's Hospital, Greenwich, and senior house-surgeon to the Elsie Inglis Maternity Hospital, Edinburgh. She joined the B.M.A. in 1926 and took the D.P.H. of the Conjoint Board in London in 1931. Until lately she had lived at Cheltenham.

With the passing of JOSEPH WALKER, M.R.C.S., L.S.A., on June 18 at the ripe age of 93 years the Liverpool Division has lost a courtly Victorian physician. He first settled in the district at Kirkby in 1888, and in 1899 came to Bootle, where he practised for 40 years before retiring to Formby. He joined the B.M.A. in 1884 and quickly became interested in medical politics. He was Representative for Liverpool Division at six Annual Meetings, and had been chairman of the Division. He took a great deal of interest in the first National Health Insurance Act, and though he never joined the panel he was always ready to help those practitioners who wished to join; he served on the Bootle Insurance Committee for some years and went as a representative of the Bootle Local Medical and Panel Committee to the Annual Panel Conference. He also took a great interest in the Royal Medical Benevolent Fund, and for many years was honorary secretary for Bootle. In motoring he was one of the pioneers, and I well remember his De Dion single-cylinder car. He was an avid reader of his *Journal*, and whether it was an academic leading article or a medico-political point which affected the profession generally, he was as ready to discuss the one as he was to repudiate the other; his grasp of the essential point was great, and his judgment almost unerring and at times uncanny. To the younger generation of doctors he was most kind, always ready to help with sound, fatherly advice, tempered with a gentle humour that endeared him to all fellow practitioners and patients alike.—E. I. C.

Dr. JEAN GWENNETH BRABNER died by enemy action last month while on hospital duty. She was the elder daughter of Mr. and Mrs. W. W. Brabner of Harley, Loughton, Essex, and only entered the profession this year, qualifying as M.R.C.S., L.R.C.P., and joining the British Medical Association.

The death is announced at Sandgate, Kent, of Dr. WALTER DENBY, formerly of Bradford, aged 83. He graduated M.B., C.M. at the University of Edinburgh in 1887 and proceeded M.D. in 1898. After serving as house-surgeon at the Bradford Royal Infirmary he practised for 30 years in Great Horton Road, Bradford, and was senior surgeon to St. Catherine's Home for Cancer and Incurables. Dr. Denby joined the British Medical Association as long ago as 1888; he retired from work in 1924.

The Services

The announcement concerning Capt. R. Fletcher, R.A.M.C., published in a *Supplement* to the *London Gazette* dated April 6 and in the *Journal* of April 29 (p. 605) as mentioned in dispatches should have read Capt. (Temp. Major) R. T. Fletcher, R.A.M.C.

Owing to a printer's error the name of Wing Cmdr. G. B. Grayling, R.A.F.V.R., published in the *Journal* of July 1 (p. 29) as mentioned in dispatches, was incorrectly spelt.

CASUALTIES IN THE MEDICAL SERVICES

Capt. SAMUEL CHARLES HOLLAND HOOD was killed by enemy action in Normandy on July 13 at the age of 25, being struck by a mortar shell while actually attending to wounded. He received his education at Tonbridge School, Caius College, Cambridge, and the Middlesex Hospital. The final part of his clinical training was carried out at the Royal Hospital, Wolverhampton, and he obtained the Conjoint diplomas in 1942 and the M.B., B.Ch. the following year. Mr. R. Milnes Walker writes: After qualifying he held for a short time a resident post at the Hallam Hospital, West Bromwich, and was subsequently house-surgeon at Wolverhampton. While there he won the respect of all those who worked with him by his conscientious attention to his duties and the diligence with which he carried out his work. He was rapidly developing a sound critical judgment. His especial interest lay in the study of diseases of the chest, and he had hoped after the war to follow this up by further study of tuberculosis. While at Cambridge he was a member of the Cambridge University Scientific Expedition to North-East Greenland. His commanding officer writes in glowing terms of the exceptional way in which he carried out his work during the first difficult days in Normandy.

Wounded.—Temp. Major F. L. Cane, War Subs. Capt. C. Moore, War Subs. Lieut. A. S. Smith, R.A.M.C.

Died of wounds.—Capt. C. H. Blackham, R.A.M.C.

Reported prisoner of war.—Capt. G. S. Hodge, R.A.M.C.

Universities and Colleges

UNIVERSITY OF BIRMINGHAM

At a Congregation on July 1 the following degrees were conferred:

HON. M.D.—H. Guy Dain, M.B., LL.D.

HON. M.CH.—W. Warwick James, O.B.E., F.R.C.S.

FINAL M.B., CH.B.—[1]R. Astley, R. F. Baird, Kathleen J. Bee, Katharine N. Bentley, D. H. Blake, M. B. Clitheroe, Hilary B. J. Cooke, J. Cox, J. H. Cox, D. F. Davies, H. Geuter, Marguerite C. B. Grove, H. Y. Hain, F. M. Hall, H. Hughes, C. V. Kaula, J. G. Kendall, M. M. Lidgate, J. A. Litchfield, M. J. Lower, [1]F. G. W. Marson, Winifred M. Mitchell, E. H. Mucklow, T. Mucklow, K. O. M. B. O'Meara, E. A. O'Neill, N. L. Owen, J. A. P. Peirce, P. G. H. T. Pollitt, [1]G. W. Poole, R. D. Poole, R. J. P. Pugh, E. T. Radford, R. G. W. Reeves, R. L. S. Richard, [1]E. F. Riley, [1]Audrey F. Roberts, B. S. Rose, [2]R. W. Spencer, L. S. Stephens, E. J. Wadge.

The following scholarships, medals, and prizes have been awarded:

Queen's Scholarship (third year), L. W. Robinson; (fourth year) J. M. D. Roberts. *Ingleby Scholarship*, J. M. Mynors. *Foxwell Memorial Medal*, Margaret D. Thompson. *Gamgee Memorial Medal*, Margaret L. Hampton. *Priestley Smith Prize in Ophthalmology*, *Butterworth Prize*, and *Queen's Scholarship* (final year), Theresa Lazar. *Queen's Scholarship* (fifth year), J. R. G. Bastable. *Leith-Newman Prizes in Pathology* (fourth year): Medical, R. F. Martin; Dental, E. A. Marsland. *Thompson Prize in Anatomy* (third year), L. W. Robinson. *Russell Memorial Prize*, F. G. W. Marson. *Windle Prize in Anatomy*, M. G. FitzGerald. *Barritt Melson Memorial Gold Medal*, O. P. Gray.

[1]Distinction in Medicine. [2]Distinction in Surgery.

UNIVERSITY OF DUBLIN

The following medical degrees were conferred on June 28 in the School of Physic, Trinity College, Dublin:

M.D.—F. S. Stewert.

M.B., B.CH., B.A.O.—M. L. Abrahamson, S. Barnes, R. W. Barter, F. J. Burns, D. D. Crilly, J. J. Cussen, H. E. Devlin, L. Doyle, B. V. Earle, R. E. Fenelon, Mary Fitzmaurice, D. A. Good, W. E. R. Hackett, H. R. Hanna, Millicent R. Hopkins, W. H. Houston, A. R. B. Jackson, W. G. Keane, R. D. Levis, D. D. McGrath, M. S. Millard, I. R. Moore, Betty R. O'Grady, E. G. Redman, J. P. R. Rees, H. H. Robinson, L. M. Roe, Margaret E. Rutherford, S. N. Rutherford, W. H. Rutherford, J. B. Ryder, Betty D. Scott, J. M. Stewart, V. O. Stewart, C. W. Sweetnam, A. B. Walsh, Mary L. Grove-White (formerly Wilson), W. T. C. Wilson.

UNIVERSITY OF LEEDS

The following have been successful at recent examinations:

M.D.—S. Wray.

FINAL M.B., CH.B. (Part I).—Rhoda M. Allison, Betty S. Astle, [1]Joan L. Awmack, J. G. Benstead, [2]G. L. Bickler, E. G. Brewin, J. L. Broadbent, [2]A. K. Daniels, [1 2]J. Davies, P. B. Dews, O. P. Edmonds, G. R. Fryers, R. L. Gibson, Pauline H. Goss, Gertrude Harris, M. H. M. Harrison, J. R. Heseltine, Mary A. Hewett, J. D. Holdsworth, Dorothy D. Jones, L. Langton, F. A. Lodge, F. D. Lumb, [2]J. McKennell, D. H. McMillan, Marjorie S. Oxley, J. G. Pearson, R. E. Riley, Joan M. Robinson, L. B. Robinson, [2]R. J. Scothorne, H. Shooman, [1 2]F. G. Smiddy, J. G. Smirk, Stella A. Speight, G. M. Thornton, E. J. S. Townsend, L. E. Wear, [2]R. W. Wilkinson, [2]Elizabeth Wilman, L. E. Wood, [2]A. S. Woodcock, Ellen L. M. Wreford, H. J. Wright, A. D. Zermansky, D. Zimmerman. *Therapeutics*: Betty S. Astle, Joan L. Awmack, [3]G. L. Bickler, J. L. Broadbent, K. J. Burnett, P. S. R. Burrell, A. K. Daniels, [3]J. Davies, P. B. Dews, R. L. Gibson, Pauline H. Goss, D. G. Hardy, Elizabeth M. Hargreaves, [3]M. H. M. Harrison, Edith V. Heritage, J. R. Heseltine, Mary A. Hewett, J. D. Holdsworth, Dorothy D. Jones, Catherine M. Lamplugh, [3]L. Langton, F. A. Lodge, J. McKennell, D. H. McMillan, J. G. Pearson, R. E. Riley, Joan M. Robinson, L. B. Robinson, R. J. Scothorne, H. Shooman, R. Sloman, F. G. Smiddy, Stella A. Speight, G. M. Thornton, L. E. Wear, R. W. Wilkinson, Elizabeth Wilman, L. E. Wood, A. S. Woodcock, Ellen L. M. Wreford, [3]H. J. Wright, A. D. Zermansky, D. Zimmerman.

[1] Distinction in Public Health. [2] Distinction in Forensic Medicine. [3] Distinction in Therapeutics.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examinations indicated:

M.D.—G. J. C. Brittain, P. Jones.

M.B., CH.B.—[1 2]J. V. Shepheard. *Part III*: P. M. Edis, K. B. N. Freeman, N. J. Gourdji, Ethel J. Higgitt, Constance G. Lee, Margaret J. Lezama, J. K. Meiring, Margaret Slater, A. Stone, Barbara K. Thompson, R. S. Williams. *Passed in Separate Subjects*: E. H. Annels and A. Griffith (Medicine, Obstetrics, and Gynaecology). D. A. Harbord (Medicine and Surgery). *Part II*: H. B. Andrews, A. D. Charnley, E. Cooper, [3]K. R. Dumbell, S. Gillis, J. T. W. Jones, S. Lipton, J. B. Roberts. *Passed in Separate Subject*: M. M. I. el Haddad (Public Health).

[1] Second-class honours. [2] Distinction in Surgery. [3] Distinction in Public Health.

UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examinations indicated:

M.D.—H. W. Clegg, E. L. Jones, [1]E. L. Patterson, [2]F. Stratton. Elizabeth C. S. Williams, R. V. Wright.

FINAL M.B., CH.B.—[3 4 6]R. W. Burslem, [3]J. H. Diggle, [3]Constance M. Duddle, [3 4 5]John Hewet, [3]P. Jewsbury, [3 4 5]L. A. Liversedge, [3 4]S. Oleesky, [3]A. E. Thomas, F. Batley, D. G. Berry, Doreen M. M. Dutton, J. D. Heppleston, R. Heirons, [6]Marian E. Jepson, F. Latham, Margaret M. Lawton, J. Leary, Marian B. T. McIntosh, Joan A. Mettam, B. Nicholson, T. A. Nowell, Nancy B. Penney, Leslie Rose, B. Samuels, P. W. E. Sheldon, J. A. Shrigley, H. Tabbush, G. S. Tupman, W. V. Wadsworth, G. H. Watson, B. Wilkins. *Part I (Forensic Medicine and Hygiene and Preventive Medicine)*: Ruth A. Ainsworth, Constance Atkinson, George Bennett, J. L. Braithwaite, Merton Brookes, N. J. Caldwell, Ethel F. Caplan, Dorothy B. Charlton, C. L. Dubberley, Mary E. Eagles, S. S. Epstein, G. C. Fletcher, J. H. H. Gibbon, Doreen H. Hayes, F. Howarth, P. Jewsbury, Margaret Laycock, L. A. Liversedge, Kathleen V. Lodge, K. Lowe, B. Marsden, Kathleen P. E. Mumford, Sylvia N. Nabarro, J. A. Noblett, Joan E. Nuttall, M. H. Ocibaum, S. Oleesky, A. O. Osbaldeston, N. J. Roussak, E. P. Samuel, M. G. Saunders, Cecilia M. Smellie, J. P. Smith, Margaret E. Tate, Margaret M. Tutton, Marie R. West, Alice R. E. Widdows, J. D. Willins, Eric Wood, J. Wiseman.

[1] Gold medal. [2] With commendation. [3] Awarded second-class honours. [4] Distinction in medicine. [5] Distinction in surgery. [6] Distinction in obstetrics.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

On July 6 three Fellows were elected into the Council to fill the vacancies caused by the retirement in rotation of Sir Robert Kelly, Mr. C. Max Page, and Major-Gen. W. H. Ogilvie. The following Fellows were elected:

William Heneage Ogilvie (Guy's)	572
Charles Max Page, C.B., D.S.O. (St. Thomas's)	490
Geoffrey Langdon Keynes (St. Bartholomew's)	341

The following were the other candidates:

Robert John McNeill Love (Royal Northern Hospital)	284
Percival John Moir, *M.C.* (General Infirmary, Leeds)	257
Victor Ewings Negus (King's College Hospital)	216
Robert Milnes Walker (Royal Hospital, Wolverhampton)	209
Arhtur Dickson Wright (St. Mary's)	183
Herbert Henry Sampson, O.B.E., *M.C.* (Queen Elizabeth Hospital, Birmingham)	180
Rodney Honor Maingot (Royal Waterloo Hospital)	167
Charles Alexander Wells (Royal Liverpool United (Royal Southern) Hospital)	166
Stanford Cade (Westminster)	147
Charles Walter Gordon Bryan, *M.C.* (St. Mary's)	79

In all 1,238 voted; in addition 3 votes were found to be invalid. Major-Gen. W. H. Ogilvie, Mr. C. Max Page, and Air Vice-Marshal G. L. Keynes are all elected for the full period of eight years.

An appeal for funds to provide a General Orde Charles Wingate Memorial Ward in the Princess Tsahai Memorial Hospital at Addis Ababa was launched at a meeting of friends of Ethiopia held in London recently. Donations may be sent to the hon. treasurer, Lord Horder, c/o H. Reynolds and Co., 1, Bloomsbury Court, High Holborn, W.C.1.

Medical Notes in Parliament

Feeding Scottish School-children

The House of Commons discussed the Scottish education estimates in Committee of Supply on June 4. Mr. JOHNSTON said that there was an increase in the general aid grant amounting to £436,000. Of this, £398,000 would go to the education authorities and the balance to technical colleges and central institutes generally. The increase of £398,000 to the local authorities included a grant of £184,000 for meals and milk in schools. The school-feeding grants had risen from £471,000 to £655,000. This campaign for feeding in schools, which was launched in the autumn of 1941, had been pursued with increasing vigour. The number of children receiving dinners at schools had increased from 50,000 in December, 1941, to 175,000 in February, 1944, and during the past year the numbers receiving dinner had increased by 50,000 and those receiving lunches by almost 2,000. The percentage receiving meals at school was now over 25, an increase of 6% on the figure for 1943 and of 14% on that for 1942. The number of pupils receiving milk at school, as apart from meals, had increased by 14,000 during the past twelve months and was now almost 69% of the entire school population of Scotland.

While school medical examinations had been restricted in most parts of the country, what evidence there was in the remainder continuing examinations went to show that the health of the school-child was steadily improving, and in Glasgow in particular the height and weight of the school-child both at entry to the registers and at the school-leaving dates were materially improving over the figures for the last pre-war years.

Diagnosis of Smallpox at Mount Vernon Hospital

On July 4 Mr. VIANT asked the Minister of Health, in connexion with the announcements of his Department in the Press and on the radio in regard to the outbreak of smallpox at Mount Vernon Hospital, why no mention was made of the fact that the disease was introduced into the hospital by a re-vaccinated soldier from the Middle East who was wrongly diagnosed as suffering from measles and chicken-pox, why the patient was not isolated, how this wrong diagnosis arose, and what steps he proposed to take to minimize the risk of similar mistakes in future. Mr. WILLINK said that a statement to the effect indicated in the first part of the question was issued by his Department and was published in the medical press and in at least one lay newspaper. He was informed that the patient was isolated; first for measles and chicken-pox, and later, as soon as smallpox was diagnosed, in a smallpox hospital. The signs and symptoms observed by competent medical officers did not lead them to diagnose smallpox. This diagnosis was made retrospectively in the light of subsequent events. Diagnosis was a matter for the medical officer in attendance, but, since many medical men had had no opportunity of familiarizing themselves with smallpox, he had enrolled in each region a panel of experienced men to assist in diagnosis.

Medical Services of Ministry of Pensions

Introducing, on July 7, the Estimates for the Ministry of Pensions, Sir WALTER WOMERSLEY said his medical staff continued to set themselves a high standard of professional and administrative efficiency. In recent weeks Mr. Paling and he had visited a number of Ministry hospitals. Everywhere they found complete efficiency and readiness to meet the heavier calls which must come as the war progressed. In spite of the man-power difficulties medical and hospital staffs would be found ready to meet all the demands upon them. One of the Ministry's hospitals had been put to a severe test, as it was called upon to assist the Service Departments by acting as a clearing station for casualties brought back to this country from the time of the landing in Normandy. Many hundreds of men had passed through it, leaving as soon as they were ready for removal to another hospital for prolonged treatment. The arrangements had been completely satisfactory to the Service Departments. Another hospital had been adapted as a base hospital for battle casualties coming from a clearing station. There, also, all requirements were fully met. Up to April 1, 1944, officials of the Ministry of Labour interviewed 150,000 disabled persons in hospital so that the question of employment could be considered before discharge. Care was taken during hospital treatment to rehabilitate the disabled man and make him as fully able to work as possible. The result had been that 35,000 of those interviewed were able to take jobs which they knew to be available for them, and 88,000 suitable for immediate employment were at once placed in jobs. Of

the remainder 11,000 were found to require training which would fit them for full employment. The number of cases in which the question of employment presented great difficulty was 2,231.

Limitation of Doctors' Lists

Sir LEONARD LYLE inquired on July 6 whether, in case of any shortage of doctors to meet the requirements of a State health insurance scheme applicable to everybody, it was proposed to remove any limit on the number of panel patients registered with a medical man, or to use compulsion to bring in a sufficient quota of doctors. Mr. WILLINK replied that it was not proposed to compel any doctor to take any part in the new service. The appropriate limits to the number of patients whose care a doctor should be able to undertake within the service would need to be considered fully with the medical profession when the proper time came.

Criminal Lunatics.—On July 4 Mr. HERBERT MORRISON, replying to Dr. Salter, said that the numbers of persons certified insane under Section 2 of the Criminal Lunatics Act, 1884, in prisons and Borstal institutions and removed to mental hospitals, including Broadmoor Asylum, during each of the last five years were: 1939, 88; 1940, 83; 1941, 64; 1942, 86; and 1943, 69.

Deaths from Cancer.—Mr. WILLINK informed Mr. Leach on July 4 that the numbers of deaths from cancer registered in England and Wales during the years 1939 to 1943 were: 1939, 67,154; 1940, 68,922; 1941, 69,227; 1942, 70,419; and 1943, 72,158 (provisional).

Institutional Accommodation for Tuberculosis.—On July 4 Captain MCEWEN informed Sir Waldron Smithers that at March 31, 1944, the latest date for which figures were available, the number of tuberculous cases in England and Wales which had been awaiting institutional treatment provided by tuberculosis authorities for a period of more than ten days was 3,960. The figure for Kent at the same date was 236 cases.

Admission to Sanatoria.—Sir WALDRON SMITHERS inquired on July 6 whether it was the policy to admit advanced cases of tuberculosis to sanatoria or to select those who were more likely to recover or to admit patients in accordance with the date of recommendation. Mr. WILLINK answered that the admission of tuberculous persons to hospitals or sanatoria was the responsibility of the tuberculosis authority, acting on the advice of its appropriate medical officer. There were differences in practice, but it was general to select patients for admission on clinical grounds and not in accordance with the date of recommendation. In general, selection for admission to particular institutions was made on the merits of the individual cases.

Notes in Brief

The Minister of Health stated in the House of Commons recently that the number of new cases of tuberculosis in England and Wales notified in 1943 showed an increase of 18.4% over 1939, but the number of deaths, which was considered the truest guide to the incidence of the disease, showed an increase of only 0.1% over the same period.

Medical News

The twenty-third annual general meeting of the Medical Society for the Study of Venereal Diseases will be held on Saturday, July 22, at 2.30 p.m., at 11, Chandos Street, Cavendish Square, W.1. After the transaction of business Dr. J. A. Scott will give an address on venereal diseases in the Soviet Union.

It has been decided to postpone the conference on "The Nutritional Role of the Micro-flora in the Alimentary Tract," which the English Group of the Nutrition Society was to have held on Saturday, July 22, at the London School of Hygiene and Tropical Medicine. An announcement of the revised arrangements will be made later.

The Joint Committee for Soviet Aid, honouring the memory of the Soviet General Vatutin, who died in April of this year, has launched a £50,000 fund for medical supplies and comforts for the Red Army and the liberated peoples of the Soviet Union. Among the first donations to this fund was one from General Eisenhower, who sent the following message: "The death of General Vatutin at Kiev is an irreparable loss, not only to the Soviet Union but also to the United Nations. His name will always live in the annals of great military leaders. I can imagine no finer memorial to a soldier than the provision of medical supplies and comforts to the fighting men of his country and the peoples they have liberated. I should like personally to contribute to your campaign." Cheques for the fund should be made payable to the hon. treasurer, Sir Peter Chalmers Mitchell, Joint Committee for Soviet Aid, 171, St. Stephen's House, Westminster, London, S.W.1.

The Minister of Supply has appointed Prof. H. Raistrick, F.R.S., as honorary scientific adviser on penicillin production. Prof. Raistrick is a member of the General Penicillin Committee and holds the chair of biochemistry at the London School of Hygiene and Tropical Medicine (University of London).

Through His Majesty's Ambassador in Chungking, the Director of the Chinese National Central Library generously offers to provide British scholars with Chinese material for specialist researches, and to arrange for its translation into English if desired. The Library will also forward lists of books available to interested institutions in this country. The British Council, in gratefully acknowledging this offer, has undertaken to act as intermediary on the British side, and will answer inquiries about the scheme, which should be addressed to the Director, Books Department, British Council, 3, Hanover Street, London, W.1.

The Ministry of Health has informed local authorities that information obtained through Regulation 33B may be disclosed to medical authorities of H.M. Forces or those of the United States or other Allied or associated Forces, so far as this is necessary to secure examination and treatment of persons alleged to be sources of infection. Local authorities should send particulars of any member of these Services who is named on a Form I received by the medical officer of health to the medical authorities of the Service concerned.

There are still more than 3,000,000 children in England and Wales unprotected against diphtheria, states a Ministry of Health appeal to the country's 25,000 chemists and druggists in a special bulletin sent to the *Pharmaceutical Journal* urging them to recommend immunization. By the end of last year the number immunized in England and Wales under local authority arrangements was 4,880,000, and it is estimated that the total then stood at 56% of all children under 15. About two-thirds of those between the ages of 5 and 15 but only one-third of the under-fives, who are more susceptible to the disease, were then protected. Twenty-nine out of every thirty children who died from diphtheria were not immunized. The number protected last year was 1,051,660 against 1,399,751 the year before, and, it is pointed out, if this reduction continues, we shall hardly be keeping pace with the birth rate.

On April 15 the Save the Children Fund (20, Gordon Square, W.C.1) attained its twenty-fifth anniversary. The fund is the only international organization for child welfare in the world. Founded after the last war as a measure of relief for child victims, it has expanded to a world-wide organization for child welfare and has extended its influence to 40 different countries. In collaboration with the Council of British Societies for Relief Abroad, the officially recognized body for the co-ordination of voluntary relief effort, it is sending highly trained units to a foreign base for service in whatever lands they may be asked to work in. They will concentrate on the care of children and, in co-operation with the national organizations of the Save the Children International Union where they exist, will be prepared to assist in the reorganization of child welfare work.

The Minister of Health has reappointed the Advisory Committee on the Welfare of the Blind for a further period of three years. The committee is constituted so as to afford representation to the local authorities concerned with the working of the Blind Persons Acts, and to voluntary associations for the blind, as well as to organized blind workers.

The Association of Scientific Workers has issued from 73, High Holborn, W.C.1, a memorandum on "A Post-war Policy for Science," adopted by its council as a statement for discussion which it hopes to expand later in further publications. The reference to medical research runs as follows: "The present organization, including philanthropic foundations, universities, hospitals, manufacturing firms, etc., will obviously continue after the war. This varied organization is not necessarily bad, but may leave large and notable gaps. The Medical Research Council should enlarge its activities and undertake a more effective co-ordination of those bodies. It should extend its use of teams to tackle special problems and should support more permanent full-time research workers. Research institutes should maintain closer contact with hospitals. There should be considerable central and local expansion of industrial medicine. This might include the establishment of a central institute for industrial pathology and similar subjects. Application of existing knowledge to the benefit of the community is partly a problem of social organization. For this reason the A.Sc.W. has for some time supported a State Medical Service. As a problem of internal organization, better clerical assistance, uniform medical records, better assistance in diagnosis and access to data would reveal new information about morbidity and expose new problems. The medical sciences will also face the problem of a shortage of personnel. This will be relieved to some extent by workers demobilized from the Services, but further facilities for training will have to be established."

The December, 1943, issue of the *Bulletin of the History of Medicine* is devoted to Vesalius.

The issue of the *Schweizerische Medizinische Wochenschrift* for April 15 is dedicated to Dr. Ernst Oppikofer, professor of oto-rhino-laryngology at Basle, on the occasion of his 70th birthday.

The late Dr. C. E. Douglas of St. Andrews, among other charitable bequests, left £1,000 to the British Medical Association's Charities Fund.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week the incidence of whooping-cough, scarlet fever, and measles dropped by 204, 93 and 85 respectively. There was a slight rise (31 cases) in the notifications of diphtheria; during the past five weeks the average number of cases of this disease has reached the low level of 478. The local trends of scarlet fever underwent little change during the week. Although there were fewer notifications of whooping-cough, the largest local variations were rises in Cheshire and Warwickshire—which reported respectively 47 and 40 more cases than last week—and a decrease of 40 cases in Kent. London and Lancashire each had 60 fewer cases of measles than last week, and Middlesex 40; the greatest rises in this disease were 57 in Southampton and 47 in Kent.

Dysentery notifications went up by 10 during the week. The chief outbreak was in Glamorganshire 59 (Penarth U.D. 46, Cardiff C.B. 11). The other large returns were from Lancashire 31, Sussex 16, Yorks West Riding 11, Warwickshire 10, London 10.

In *Scotland* notifications of measles were 147 fewer than last week, whooping-cough 44, and scarlet fever 27. Glasgow reported 37 and Edinburgh 13 of the total of 88 cases of dysentery—a total 25 higher than last week. Of the 22 cases of typhoid fever 19 were notified in Glasgow.

In *Eire* the notifications of diphtheria fell from 82 to 55. The largest return for measles was Clare, Ennis U.D. 42. One case of typhus fever was reported from Galway, Oughterard R.D., this being the fifth case recorded in Eire in the last six weeks.

In *Northern Ireland* all the 45 notifications of measles and 26 of the 56 cases of scarlet fever were recorded in Belfast C.B.

Week Ending July 1

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,437, whooping-cough 2,382, diphtheria 432, measles 2,503, acute pneumonia 558, cerebrospinal fever 44, dysentery 135, paratyphoid 2, typhoid 10.

Tuberculosis during 1914–18 and 1939–43

In 1914 and again in 1939 the outbreak of war was the direct cause of a rise in tuberculosis mortality. The deaths rose during 1939–41 and then fell; in 1914–18 the mortality continued to increase throughout the war. The deaths for the two periods in England and Wales are:

Year	Pulmonary	Non-pulmonary	Year	Pulmonary	Non-pulmonary
1914	37,838	12,460	1939	21,542	4,081
1915	40,803	13,492	1940	23,660	4,484
1916	40,769	13,089	1941	23,633	5,037
1917	42,335	13,599	1942	20,989	4,560
1918	45,338	12,735	1943	21,340	4,310

The rise in mortality during 1939–41 affected mainly children, old men, and young women. The relative increase for all ages was approximately the same for both sexes. During 1914–18 the increased mortality was concentrated on ages 5–45, with a peak at ages 15–20. The females suffered a higher relative increase than did the males. The percentage increases in death rates from 1914 to 1918 during young adult ages from all forms of tuberculosis were 42, 20, 20 for males aged 15–19, 20–24, 25–34, and 48, 39, 30 for females.

Table Correction

In the epidemiological table printed at page 32 of the issue of July 1 the notifications for influenzal pneumonia and for primary pneumonia were reversed in the four columns for 1944. Thus the notifications for England and Wales for influenzal pneumonia should have been 738, for London 61, for Scotland 200, and for Eire 26; for primary pneumonia there should have been no notifications for England and Wales or for London (these being included under influenzal pneumonia as usual), 5 for Scotland, 2 for Eire, and 8 for Northern Ireland.

A report of the conference on the part which social workers can play in the Beveridge plan for social security, which was held in London last year by the British Federation of Social Workers, has now been published and can be had from the offices of the Federation, 5, Victoria Street, S.W.1. It contains the text of the four addresses (also some discussion), including that by Mr. Somerville Hastings on the place of the social worker in a unified health service, and that by Prof. Sargant Florence on the importance of trained personnel.

No. 25

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 24.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1944 (a)	(b)	(c)	(d)	(e)	1943 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	53	2	32	2	1	64	4	28	2	4
Deaths		—	—				3	1		
Diphtheria	487	33	119	55	17	582	30	148	79	33
Deaths	4	—	—	5	—	14	2	2	1	—
Dysentery	201	10	88	—	—	107	16	108	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	2	—	—	1	—	3	1	—	—	—
Deaths		1					1			
Erysipelas			39	8	6			38	9	4
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				11					33	
Deaths	38	7	13	12	3	46	13	10	10	8
Measles	2,538	139	282	129	45	5,774	331	322	18	16
Deaths	—	—	2	—	—	2	—	1	—	—
Ophthalmia neonatorum	74	5	10	—	—	85	5	16	—	—
Deaths										
Paratyphoid fever	7	1	1 (B)	5 (B)	—	11	1	1	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza]*	452	17	5	5	6	553	24	2	1	3
Deaths (from influenza)	12	—	1	—	—	8	—	—	2	—
Pneumonia, primary			187	13				184	16	
Deaths		23		11	9		15		7	8
Polio-encephalitis, acute	1	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	15	—	2	1	—	5	1	3	—	—
Deaths		—					—			
Puerperal fever		4	13		—		1	13		1
Deaths										
Puerperal pyrexia†	138	9	25	1	1	157	17	17	2	1
Deaths		—					1			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,451	90	185	18	56	1,680	156	244	46	60
Deaths	3	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	10	1	22	12	1	11	—	6	11	1
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	1	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough	2,424	233	153	63	18	2,330	119	240	50	47
Deaths	11	1	1	4	1	13	3	6	1	1
Deaths (0–1 year)	303	36	58	31	14	290	44	72	43	26
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,777	1,206	604	197	118	3,967	587	559	206	132
Annual death rate (per 1,000 persons living)			13·9	12·8	‡			12·6	13·5	‡
Live births	7,575	840	1,048	449	278	7,030	857	992	394	292
Annual rate per 1,000 persons living			21·3	—	‡			20·2	25·9	‡
Stillbirths	198	13	35			236	24	30		
Rate per 1,000 total births (including stillborn)			32					29		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Articulate Westcent, London.*

MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. TELEPHONE: EUSTON 2111. TELEGRAMS: *Medisecra Westcent, London.*

B.M.A. SCOTTISH OFFICE: 7. Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Diagnosis of Acute Abdominal Disease

Q.—*Pethidine is coming into prominence as a pain-relieving drug, and in many cases is replacing morphine. Can pethidine be given to cases of acute abdominal pain in which the diagnosis is not clear and the patient needs watching, without the fear of physical signs being removed, as in the case of morphine?*

A.—The question at issue is whether pethidine will relieve the pain of colic but not that of peritonitis. It is generally accepted that this drug relieves spasm, though it cannot be relied upon constantly to do so; but its effect in peritonitis is variable—it may act as morphine does, but again it is unreliable. It would therefore appear to be a most unsuitable drug to use in an undiagnosed case. Furthermore, there are reliable antispasmodics such as the nitrites, or calcium salts given intravenously, which are effective only in relieving colic. It must be pointed out, however, that experiment with drugs is not to be favoured as a method of establishing the nature of acute abdominal disease.

Treatment of Infantile Uterus

Q.—*A patient aged 18 has complained of a primary type of dysmenorrhoea for the past three years. On examination under anaesthetic she has a uterus one inch long, anteverted and anteflexed. She has no other signs of any endocrine upset. Would she benefit from any hormone treatment? If so, would you give details of the preparation, dosage, and length of time it should be continued?*

A.—This is clearly a case of infantile uterus and it is quite likely that it will respond to treatment with oestrogens. The synthetic oestrogen, stilboestrol, is easily obtainable and should be tried first. A dosage of 3 mg. a day is recommended, and this should be given only in the first half of the cycle—i.e., for a fortnight after the onset of the menstrual period. The patient should be warned that it may be three months or more before she experiences any benefit from the treatment. Stilboestrol causes nausea and vomiting in about 20% of non-pregnant patients. Should this occur, another synthetic product, hexoestrol, should be tried in the same doses. Hexoestrol causes vomiting in only about 5% of non-pregnant patients. Should neither stilboestrol nor hexoestrol be tolerated, oestradiol benzoate in doses of 50,000 i.u. should be given by injection twice weekly in the first half of the cycle. Treatment should be continued for six months and the patient then re-examined to see if there has been any increase in the size of the uterus. If the uterus has enlarged and the symptoms are relieved, no further treatment will be required. Hormone treatment in these cases should be combined with general hygienic measures, such as regular exercise in the open air, attention to constipation, and so on. Cases that are refractory to hormone therapy present a difficult problem, but if hormone treatment fails and the dysmenorrhoea is severe enough to incapacitate the patient, a presacral neurectomy might be considered.

Enlarged Tonsils

Q.—*In view of the diversity of opinion, can you recommend the best line of treatment for enlarged tonsils in a child aged 2, no mouth breathing at present, otherwise healthy but liable to recurrent colds?*

A.—There is scarcely enough information to answer this. Are the glands in the neck enlarged? Have there been any attacks of tonsillitis? Does the enlargement date from a recent acute specific fever? It is disappointing to remove tonsils for recurrent "colds." It would be worth while deciding whether these "colds" are caught from some other member of the household or if they develop spontaneously. In the latter case what is the state of the antra? It would be worth while using some nasal drops such as ung. hyd. nit. dil. 30 gr., arachis oil to 1 oz. If the tonsils look unhealthy and the child is at all co-operative, painting them with Mändl's paint might be considered.

Deafness in a Young Man

Q.—*A man aged 33 has otosclerosis which first manifested itself at the age of 16, when he suffered much from nasopharyngeal catarrh; but there was never any Eustachian obstruction. Bone conduction is quite good. The hearing slowly and steadily deteriorated until a few years ago, since when there has been very little, if any, change. There is no tinnitus or any other complication, and the general health is good. His mother suffered in a lesser degree at the age of 27, but improvement followed after a few years without any treatment.*

A.—It is impossible to say without examining the patient whether he is suffering from a chronic adhesive process which has become established and stationary, or from otosclerosis, and even on examination it might be difficult to make a decided diagnosis. If the case is one of otosclerosis, the history both familial and personal being rather in favour of this, the deafness is likely in the long run to be progressive. No treatment locally is of any avail whatever, and these patients are subjected to incessant exploitation. A suitable hearing aid, if the degree of deafness demands it, is the best means of overcoming the disability. The operation of fenestration of the labyrinth was referred to on page 445 of the *Journal* of March 25, 1944; the purpose of this is to improve the hearing by making a permanent opening into one of the semicircular canals, the lateral canal being usually chosen. This, however, could not be recommended without a careful examination and evaluation of the deafness in the particular case, and the results are uncertain.

Treatment of Lumbago

Q.—*A patient has for many years suffered from attacks of lumbago. Recently these attacks have become more severe, and occasion great distress and incapacity. Treatment, including infiltration with local anaesthesia, has been unavailing. The muscles affected are those of the lumbo-sacral region. What is the modern conception of this disease, and how is it best treated?*

A.—Further investigation of this case would appear to be required, including *x*-ray examination of the lumbar spine and sacro-iliac region—antero-posterior, lateral, and oblique. Some anatomical abnormality may be present predisposing to strain; this appears to be frequent in the presence of sacralization of the fifth lumbar vertebra, or the similar condition, "lumbarization" of the first sacral segment. If there is any evidence that the attacks are apt to follow any physical effort, particularly bending, wearing a properly fitted belt might be helpful, but stress must be laid on such a belt being designed to give genuine support. Many of the belts worn by victims of lumbago are worse than useless. Capener, in a Hunterian Lecture in 1941, dealt with the anatomical basis of the strains liable to occur in this region. The acute attacks may be due to spasm of the quadratus lumborum and associated muscles.

If physical causes can be excluded, gout may be the cause, and an examination of the blood for the uric acid content may throw a light on the problem; anything over 4 mg. of uric acid per 100 c.cm. will be suggestive. If this should prove to be the case, cinchophen will be the appropriate remedy for the acute attacks in doses of half a gramme thrice a day for three days, followed by an interval of from five to seven days. Between the attacks an eliminant such as diuromil may be taken with advantage. When testing for the blood uric acid the sedimentation rate should also be determined. It may be slightly accelerated in gout, but any marked increase will indicate the probability of an infective origin, and search should be made for the probable focus, which may very possibly lie in the prostate though not necessarily being gonorrhoeal in nature. In any case rectal examination is desirable. As general lines of treatment, heat, massage, and manipulation will be indicated; and a course of treatment at a spa, which would probably mean the use of such methods together with measures to promote elimination, might be a profitable way of spending a holiday.

Treatment of Molluscum Contagiosum

Q.—*A young woman has molluscum contagiosum on her face, confirmed microscopically. The treatment prescribed is the usual one of excision and cauterization. This I have done on several occasions. Fresh crops appear at intervals of about 10 days. Is there any other and more satisfactory way of treating this condition?*

A.—In molluscum contagiosum pricking the lesions with a sharp scalpel, squeezing out the contents, and spotting with tincture of iodine is almost invariably successful. In view of the simplicity and certainty of local treatment, the use of sulphonamides, as recently recommended, seems hardly called for.

Possible Thyroid and Ovarian Deficiency

Q.—*A married woman aged 36 (1-para) has felt the cold intensely for the last few years, has suffered from chilblains, and has noticed an increased growth of hair on the upper lip. During this time menstruation has been less profuse, her periods lasting only about three days. What endocrine treatment, if any, would be useful?*

A.—The story suggests the onset of thyroid and ovarian deficiency, a not uncommon combination and one which might almost be expected in view of the common origin in the basophil cells of the pituitary factors controlling thyroid and ovarian function. Thyroid should be given by mouth, starting with a dose of 1 gr. every morning and gradually increasing until either the result is achieved or symptoms of intolerance occur. Oestrogenic treatment—e.g., hexoestrol by mouth, 5 mg. twice daily—should be given, but not continuously. It is better to instruct the patient to take the drug for a fortnight only, after the end of each menstrual period. The natural oestrogen tide is thus very roughly copied and the regularity of menstruation unaffected in most patients.

Prophylaxis in Allergic Child

Q.—*I should be grateful for advice on the immunization against diphtheria of two children, now aged 7½ and 6 years, who in infancy showed intense allergy to all forms of milk, with severe anaphylactic reactions during attempts at desensitization. They also showed a tendency to develop sensitivity to other protein foods. During the past two years the only allergic symptoms have been three slight attacks of asthma in the older child (each associated with coryza), and a tendency to develop sensitivity to fish and eggs in the younger (with papular urticaria and oedema of the hard palate as symptoms). Neither child has been vaccinated. There is a family history of allergy in both parents.*

A.—Many an immunologist would Schick-test the children and, if they were positive, would give a small dose—e.g., 0.1 c.cm. of A.P.T. (*not* T.A.F. or T.A.M.). If no local or general reaction occurred, he would probably give a second dose of 0.2 c.cm. a fortnight later, followed by a third dose of 0.2 c.cm. a fortnight later still. Such a procedure might work satisfactorily. For my part, I should be extremely circumspect with such highly allergic children. I should Schick-test. If any "pseudo"-reaction occurred—even pseudo and positive—I should be hesitant to go further (hoping that the reaction indicated a trace of potential immunity). Only under parental pressure and assumption of responsibility would I give prophylactic, choosing, of course, A.P.T. I should start with minute doses—e.g., 0.1 c.cm. of a 1 : 10 dilution. In the absence of any troublesome local or general reaction, I should next day give 0.1 c.cm. of undiluted A.P.T., followed by two further doses of 0.2 c.cm. at fortnightly intervals (see *Journal*, 1940, **1**, 292; 1942, **1**, 534; and *Lancet*, 1936, **2**, 310).

INCOME TAX

Purchase of Practice: Loan from Insurance Company

T. has bought a practice with the aid of an insurance company, repaying £500 a year—roughly £350 premium and £150 interest. Is he entitled to any deduction for these payments?

*** So far as the payments represent premiums for insurance on his life, T. is entitled to the statutory "life insurance relief," to be claimed by filling up the appropriate space on the income tax return form. So far as they are payments of interest no allowance is due, but presumably the income tax on that portion of the payments is deducted so that T. pays only a net amount and receives an allowance in that way.

"Pay as you Earn"

A. retired three years ago, but has in the last two years been serving on medical boards. The fees constitute his only earned income. Some other retired members of the board are not being dealt with under "pay as you earn." Why is this?

*** If the other members have no professional earnings other than these fees they would in the ordinary course have tax deducted under the "pay-as-you-earn" system, unless the various allowances to which they are entitled exceed the fees from the board. But until the system has been working for some time differences of practice are not unlikely to occur. It should be remembered that whether tax is deducted or not does not alter the amount ultimately to be paid.

A. R. last year "earned spasmodically, doing house jobs and locumtenent work"; this year he has an assistantship and pays tax under the "pay-as-you-earn" system. Must he pay last year's tax as well?

*** Yes. The professional work last year was carried on in a manner which brought the earnings within the field of assessment under Schedule D. If he had been an assistant last year assessable under Schedule E there would have been some relief due to him, but that relief does not apply to tax under Schedule D.

Information from Bank Account

E. L. has been asked by the inspector of taxes to let him know the amount standing to his credit at the bank at April 5, 1943, and April 5, 1944. He would prefer to quote only the difference between these figures and not the figures themselves.

*** We should advise our correspondent to quote the figures asked for in spite of the fact that they may disclose to some extent the amount of "savings." A statement of total income, which is required from everybody, shows particulars of property and investments, so that some inference as to the extent of "savings" is usually possible to the inspector of taxes when dealing with assessments.

LETTERS, NOTES, ETC.

The D.P.M.: A Minimum Requirement

"MAJOR R.A.M.C., SENIOR PSYCHIATRIST," writes: It is greatly to be welcomed that the standard of the diploma in psychological medicine has been raised. It is also a wholesome advance that this diploma will be made the minimum requirement for those wanting to practise as specialists in psychiatry, psychology, or mental deficiency. At present the annual value of the diploma is £50—not an outstanding reward for passing a two-part examination requiring at least six months' special training, apart from the extensive study and practice that alone can give the beginner his basic knowledge of "what it is all about." But whether the purposes of the diploma are served by making the highest possible knowledge of neurology its main condition seems very problematic. The practice savours of the introduction of an intelligence test factor into the exam., for it means that only those who can raise time, interest, and gift for a subject in which they are not going to practise can ever hope to be granted permission to exercise their talents or achievements as doctors of the mind. Thus a mental deficiency officer of a score years' standing will be declared unfit for his job, while the youngster who had time and opportunity to swot hard in neurology will take his place with a wet diploma in his hand. At one time the policy was to encourage the G.P. to take up psychology. There used also to be provisions for separate examinations for psychological medicine and for mental deficiency. To-day anyone entering hopefully for the latter course would wait in vain for an opportunity for declaring his choice, and the busy G.P. is not given any better chances than the fresher. Nor are any allowances made for those serving in H.M. Forces, who may not have had a chance in years to study microscopical slides or formalin specimens kept in museums. Those who took a D.P.M. course in the first year of the war must feel that their teachers have misled them completely about the standard requirements if they presented themselves four years later. One feels now that the brilliant young neurologist can easily pass both parts of the exam. without, for that matter, convincing us that he will really be a first-rate psychiatrist or psychologist. If the aim of the examination is a raised standard of efficiency of personnel engaged in psychological medicine or mental deficiency, the present policy must be considered a failure.

Grenz Rays

Dr. Z. A. LEITNER (London, W.1) writes: Your questioner (June 24, p. 862) might find further information about Grenz rays in the following recently published papers: *Brit. J. Radiol.*, 1938, **11**, 586; *Proc. roy Soc. Med.*, 1943, **36**, 428; and *Brit. J. phys. Med.*, 1943, **6**, 114.

Offers of Hospitality for Doctors' Children

Dr. X., practising in Huddersfield, inquires whether a colleague in London would like to evacuate a child because of the danger of the flying bombs. The doctor in question, who has a daughter aged 9, kindly offers to accommodate a girl of about 10 years of age.

Dr. Y., of Teignmouth, Devon, who has a large empty bedroom with one double and one single bed, offers to accommodate accompanied children of a London colleague, on condition that the person accompanying them will be prepared to look after their room and help generally in running the house. Only such payment as would cover expenses would be expected. Dr. Y. adds: "Later on if the doctor himself could snatch a few days we could probably pack him in."

Any readers interested in either of these offers may communicate with the Secretary at B.M.A. House, Tavistock Square, London, W.C.1.

Visits of Indian Scientists: Correction

On page 577 of the *Journal* of April 22 there was a reference to the report of the Delhi Correspondent of the *Times* regarding the forthcoming visit of Indian scientists to England. Among the persons included in the delegation we mentioned "Col. H. L. Batra, Deputy Director of the Indian Medical Service." The correct name and designation of this officer are: Col. S. L. Bhatia, *M.C.*, I.M.S., Deputy Director-General, Indian Medical Service, New Delhi.